5. FURTHER ANALYSES OF ROUND TWO POLLUTANTS

5.1 INTRODUCTION

Chapter 4 presented the risk assessments used in the Comprehensive Hazard Identification to evaluate the list of candidate pollutants for the Part 503 Round Two regulation. In that Chapter, results are presented only for those pollutant-exposure pathway combinations for which all pollutant-specific data are available. Examples of pollutant-specific data are plant-uptake slopes for different crops; animal uptake slopes for livestock, poultry, etc.; distribution coefficients (K_d s); and human and ecological toxicity values. In this chapter, the candidate pollutants that warrant further consideration for the final list are presented. For each pollutant, the critical pathways, defined as exposure pathways for which the carcinogenic risk is 1 x 10^{-4} or higher, the ratio of exposure to the Risk Reference Dose (RfD) is one or greater, or the ecological risk quotient (RQ) is one or greater, are summarized.

5.2 POLLUTANTS THAT WARRANT FURTHER CONSIDERATION

Based on the results of the risk assessments of the Comprehensive Hazard Identification, 12 pollutant candidates have critical pathways for land application and five pollutant candidates have critical pathways for surface disposal. These pollutant candidates and their critical pathways are summarized below in Exhibits 5-1 and 5-2, respectively. None of the inorganic pollutants evaluated had a critical pathway for incineration.

EXHIBIT 5-1 Pollutants with Critical Land Application Pathways

Pollutant	Critical Agricultural Pathways	Critical Non-Agricultural Pathways
Aluminum	6	6 (for., rec., pub.)
Antimony	7, 14	7 (for., rec.); 10 (for., pub.); 14 (for., rec., pub.)
Barium	7, 10, 14	7 (for., rec.); 10 (for., rec., pub.); 14 (for., rec., pub.)
Beryllium	14	14 (for., rec., pub.)
Boron		6 (for., pub.)
Dioxins and Dibenzofurans	2, 3, 10, 12, 13, 15	3 (for., rec., pub.); 10 (for., rec., pub.); 12 (for., rec., pub.); 13 (for., rec., pub.); 15 (for., rec., pub.)
Fluoride	6, 10	6 (for., rec., pub.); 10 (for., rec., pub.)
Manganese	3, 6, 7, 14	3 (for., rec., pub.); 4 (for., rec.); 6 (for., rec., pub.); 7 (for., rec.); 10 (for., pub.); 14 (for., rec., pub.)
PCBs-coplanar	3, 4, 5, 6, 15	3 (for., rec., pub.); 4 (for., rec.); 5 (for., rec.); 6 (for., rec., pub.); 13 (for., rec.); 15 (for., rec., pub.)
Thallium	3	3 (for., rec., pub.)
Tin	7	7 (for., rec.)
Titanium	6	6 (rec.)

Notes:

Pathway 2 = residential home gardener

Pathway 3 = child ingesting sewage sludge

Pathway 4 = human ingesting animal products

Pathway 6 = livestock ingesting forage/pasture

Pathway 7 = livestock ingesting sewage sludge

Pathway 10 = soil organism predators ingesting soil organisms

Pathway 12 = humans ingesting surface water and fish

Pathway 13 = humans inhaling volatilized pollutants

Pathway 14 = humans ingesting groundwater

Pathway 15 = breastfeeding infant

for. = forest land

rec. = reclamation site

pub. = public contact site

EXHIBIT 5-2 Pollutants with Critical Surface Disposal Pathways

Pollutant	Surface Impoundments
Antimony	Groundwater
Barium	Groundwater
Beryllium	Groundwater
Dioxins and Dibenzofurans	Air
Manganese	Groundwater

From Exhibits 5-1 and 5-2, it is evident that the organic candidate pollutants dioxins and dibenzofurans as well as coplanar PCBs have more critical pathways than the inorganic candidate pollutants, except for manganese, which has the same number of critical pathways. These two organic pollutant candidates are recommended to be included on the list of pollutants for the Round Two regulation. The Agency has decided <u>not</u> to recommend including any of the inorganic pollutants on the list for the Round Two regulation, however. The justifications for that decision are presented in Appendix D on a pollutant by pollutant basis.

6. LIST OF POLLUTANTS FOR THE ROUND TWO REGULATION SUBMITTED TO THE COURT

In May, 1993, the Agency submitted a list of 31 pollutant candidates for the Part 503 Round Two regulation to the District Court in Oregon. A copy of the court notice is presented in Appendix D1. On November 30, 1995, EPA submitted the final list of pollutants for the Part 503 Round Two regulation to the court. A copy of that court notice is presented in Appendix D2.

After considering the results of the Comprehensive Hazard Identification, the analysis of pollutants that warranted further consideration, and information received from others, EPA concluded that two pollutants should be on the list for each use or disposal practice. They are: dioxins/dibenzofurans (all monochloro to octachloro congeners) and polychlorinated biphenyls (coplanar). The court notice indicates that EPA may, in the exercise of its discretion, determine to add or delete other pollutants to or from this list at the time the Round Two regulation is proposed.

In addition to the list of pollutants submitted to the court, EPA may change a limit for any of the pollutants in the Round One regulation during development of the Round Two regulation. For this reason, the Round One pollutants also are considered pollutants for the Round Two regulation.

Including the pollutants from Round One regulation, the list of pollutants for the Part 503 Round Two regulation by use or disposal practice is:

Land application

arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, dioxins/dibenzofurans, and coplanar polychlorinated biphenyls

Surface disposal

arsenic, chromium, nickel, dioxins/dibenzofurans, and coplanar polychlorinated biphenyls

Sewage sludge incineration

arsenic, beryllium, cadmium, chromium, lead, mercury, nickel, dioxins/dibenzofurans, and coplanar polychlorinated biphenyls

Dioxins/dibenzofurans and coplanar polychlorinated biphenyls were included on the list of pollutants for sewage sludge incineration even though they were regulated under the Total Hydrocarbons operational standard in Round One. EPA currently is conducting a reassessment of dioxins/dibenzofurans. Because the results of this assessment are unknown, dioxins/dibenzofurans were included on the Round Two list of pollutants for all use or disposal practices. At the completion of the dioxin reassessment, EPA may decide not to regulate

dioxins/dibenzofurans for a particular use or disposal practice or may decide to regulate dioxins/dibenzofurans on an accelerated schedule.

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APPENDIX A

ANALYSIS OF POLLUTANTS DETECTED LESS THAN TEN PERCENT OF THE TIME

Introduction

EPA conducted two screening analyses to determine if any of the 69 pollutants detected less than ten percent of the time in sewage sludge might still pose an unacceptable risk to human health. For the first screening analysis, EPA used the algorithms from agricultural Pathway 3. This pathway tends to result in high risk because small children are directly ingesting sewage sludge, without any of the mitigating influences of degradation, dilution, etc. found in other pathways. For the second screening analysis, EPA evaluated other pathways for pollutants with relatively large cancer potency slopes, or q₁* values.

To conduct these analyses, human toxicity data were needed. Exhibit A-1 presents the available human toxicity data for the 69 pollutants as well as each pollutant's frequency of detection, as measured in the 1988 National Sewage Sludge Survey (U.S. EPA, 1989a).

Screening Analysis Based on Pathway 3

To calculate exposure from agricultural Pathway 3, the only pollutant-specific data required is the pollutant's concentration in sewage sludge, as described in Section 4.2.3. EPA chose to use 98th percentile pollutant concentrations with non-detects set equal to the minimum detection level. The Agency did not use 99th percentile concentrations because such estimates are not as statistically meaningful when pollutants are only detected a few percent of the time. For the non-pollutant-specific data required for this analysis, a sewage sludge ingestion rate of 0.2 g/day, a body weight of 16 kg, and an exposure duration (for cancer) of 5/70 were used.

To calculate risk, either an oral Risk Reference Dose (RfD) or an oral q_1^* value was needed. Of the 69 pollutants detected less than ten percent of the time, 49 had at least one of these estimates of toxicity. Six of these pollutants had already been evaluated for Pathway 3 in Round One, and so were not considered further: aldrin, dieldrin, benzo(a)pyrene, DDT, DDE, and trichloroethene. For the remaining 43 pollutants, EPA estimated risk. For those pollutants with an oral RfD value, the ratio of exposure to RfD was calculated. For those pollutants with an oral q_1^* value, the risk of cancer was estimated. These results are presented in Exhibit A-2.

As shown in Exhibit A-2, for all but one of the 43 pollutants analyzed, the ratio of exposure to RfD was below one and the cancer risk was below one in 100,000. For 2-picoline, the ratio of exposure to RfD was five. EPA chose to not evaluate 2-picoline further, however, because it was only detected one percent of the time in the 1988 NSSS.

EXHIBIT A-1

			REFER	REFERENCE DOSES		,	CANCER POTENCY	ENCY	
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Availat	Available Human Toxicity Data for 72 Chemicals Detected Less Than 10 Percent of the Times	EXHIBI emical	EXHIBIT A-1 (cont'd) emicals Detected Less) ss Than	10	Percent of the Ti	8 (
			REFERENCE DOSES	OSES	•	CANCER POTENCY	<u>5</u>
CAS	Chemical Name	Percent	Percent VALUES mg/kg - d ^b		<u> </u>	VALUES Bisk/ma/ka_a	WEIG
50293	50293 DDT 333415 DJAZINON	Detect 2	Detect INHALATION ORAL 2 5.00E-04	\L -04 Mut	%.	Mut.? INHALATION ORAL	NHA
106467		2 0	9.0E	9.0E - 04 e	>		
1464535	464535 DIEPOXYBUTANE, 1,2,3,4 123911 DIOXANE, 1,4	10				2.4E-02 e	ပ
300765		210	100		<u>i</u>	1.1E-02	B2

		REFERENCE DOSES	CANCER POTENCY	lCY
CAS Chemical Name	Percent	VALUES mg/kg – d ^b	VALUES Risk/ma/ka_a	WEIGHT OF
50293 DDT	Detect			INHAL OBAI
333415 DIAZINON	N C	5.00E -04	6	
106467 DICHLOROBENZENE, 1,4	N C	9.0E-04 e		
1464535 DIEPOXYBUTANE, 1,2.3,4-	Vic	0E-01	2.4E-02 e	0
123911 DIOXANE, 1,4-	V			
300765 NALED (DIBROM)	NIC		1.1E-02	B2 B2
91203 NAPHTHALENE	VIC	2.0E-03		
108101 PENTANONE, 4 - METHYL - 2 -	N 0	NO 4.0E		
85018 PHENANTHRENE	V C	Z.0E-02 e		
PHOSPHORIC ACID, TRI-O-TOLYI ESTER	V (0
	NIC	Ī		-
98555 TERPINEOL, alpha	7	1.0E-05 d		
107493 TETRAFTHYI PYROPHOSPHATE	7			
100516 BENZYL ALCOHOI	2			
92524 BIPHENYL				
67663 CHLOROFORM	-	ND 5.0E-02		
91587 CHLORONAPHTHALENF 2		1.0E-02	8.1E-02 6.1E-03	B2 B2
DDE		8.0E-02		
132649 DIBENZOFURAN	-	5.00E-04	3.40E-01 3.40E-01	
540590 DICHLOROETHENE, trans - 1,2-	- -	1		0 Q
60515 DIMETHOATE		_		
131113 DIMETHYL PHTHALATE		2.0E -04		
117817 DI - N - OCTYL PHTHALATE		1.0E+01 e Y		
959988 ENDOSULFAN-I		2.0E-02	1.4E-02	B2
91576 METHYLNAPHTHALENE, 2—		3.0E-05		
86306 N-NITROSODIPHENYLAMINE	-1-			
13171216 PHOSPHAMIDON	- !		4.9E-03	B2 e B2
109068 PICOLINE, 2-		Z.UE - U4 Q		
79016 TRICHLOROETHENE				

T9016 | TRICHLORDETHENE

Toxicity data from IRIS (1992) unless otherwise noted.

Toxicity data from IRIS (1992) unless otherwise noted.

**Invalidation Risk Reference Concentrations converted to units of (mg/kg-d) by assuming a person weighs 70 kg and breathes 20 m³ air per day.

**Mutagenic activity as reported in RTECS (April 1993); Y = yes, N = no.

**d'Office of Pesticide Programs RID Tracking Report (27 January 1992), and List of Chemicals Evaluated for Carcinogenic Potential (Health Effects Division, 27 February 1992).

**HEAST (data from 1992 and 1991 Tables were used, with 1992 data used preferentially over 1991 data.)

EXHIBIT A-2

Chemical Name 98th Conc. Percent VALUES mg/kg - d* BUTYL BENZYL PHTHALATE 110.58 7 ALUES mg/kg - d* CHLOROBENZILATE 42801.58 7 ALUES mg/kg - d* CHLOROBENZILATE 110.58 7 ALUE 0.02 CHLORABILINE POLICY 23587.8 6 A.0E+00 CHLORANITHENE 42801.58 6 A.0E+00 CHLORANITHENE 42801.58 6 A.0E+00 CHLORANITHENE 42801.58 6 A.0E+00 CHLORANITHENE 5000.62 7 A.0E+00 PYRENE 100.00 4 A.0E+00 FIRCHLOROMETHANE 5000.62 4 A.0E+00 XYLENE, M. 5000.62 3 A.0E+00 SYLENE, M. 5000.62 3 A.0E+00 SYLENE, M. 5000.62 3 A.0E+00 SYLENE, M. A.0E+00 A.0E+00 SYLENE, METHYL 645.97 A.0E+00 AZINPHOS METHYL 645.97 A.0E+00 AZINPHOS METH	CANCER POTENCY VALUES Risk/mg/kg – d INHALATION ORAL (mg/kg – day) (ff IE – 06	EXP/RfD Individual (fraction) Cancer Risk
BUTYL BENZYL PHTHALATE ND = ML Detect INHALATION OFAL CHICHORDENZILATE 42801 58 6 ND 2.0E −02 CHICHORDENZILATE 271 592.5 6 4.0E −02 CHICHORDENZILATE 271 592.5 6 4.0E −02 ENDRIN 42801 58 6 4.0E −02 CHICHORANILINE 42801 58 6 4.0E −02 CHICHORANILINE 42801 58 6 4.0E −02 CHICHORANILINE 42801 58 6 4.0E −02 DI-N-BUTYL PHTHALATE 681 72.03 5 2.0E −01 PYRENE 42801 58 5 5 5.0E −02 CHICHOROMETHANE 500.62 5 2.0E −01 1.0E −01 XYLENE 500.62 4 2.0E −01 1.0E −01 XYLENE 500.62 3 ND 2.0E −01 XYLENE 500.62 3 ND 2.0E −01 XYLENE 500.62 3 ND 2.0E −01 ANTHRACENE 42801 58	2000 (Kill)	(fraction)
BUTYL BENZYL PHTHALATE 47801.58 7 ND 2.0E-02 CHLOROBENZILATE 110.58 7 ND 2.0E-02 CHLOROBENZILATE 2715025 6 4.0E-02 CHESOL O- 2715025 6 4.0E-02 ENDRIN 4.8801.58 6 4.0E-02 CHORDANILINE, p- 4.2801.58 6 4.0E-02 CHUORANILINE, p- 4.2801.58 5 2.0E-01 CHUORANILINE, p- 4.2801.58 5 2.0E-01 CHUORANILINE, p- 4.2801.58 5 2.0E-01 PYRENE 5000.62 5 2.0E-01 FIRICHIOROMETHANE 5000.62 3 3.0E-01 SYLENE, m- 5000.62 3 3.0E-01 AXILINERIE 5000.62 3 3.0E-01 SYLENE, m- 5000.62 3 3.0E-01 SYLENE, m- 5000.62 3 3.0E-01 AXILINATAGENE 5000.62 3 3.0E-01 AXILINATAGENE 42801.58 2	5 5 5 6 7	(Iracilon) < 0.01
CHLOROBENZILATE 110.50 7 2.0E-02 CRESOL, o-BENZICATE 263887.8 6 4.0E+00 CRESOL, o-CRID 271825.5 6 5.0E-02 ENDRIN 42801.58 6 4.0E-02 CHLORANILINE, p-CHLOROMETHANE 42801.58 6 4.0E-02 CHLOROMETHANE 42801.58 6 4.0E-02 CHLOROMETHANE 5000.62 5 2.0E-01 ETHYLBENZENE 108.71 4 2.9E-01 FIRCHLOROMETHANE 5000.62 5 2.0E-01 ETHYLBENZENE 106.01 3.0E-01 ETHYLBENZENE 108.71 4 2.9E-01 ETHYLBENZENE 5000.62 3 3.0E-01 ETHYLBENZENE 5000.62 3 3.0E-01 ETHYLBENZENE 5000.62 3 3.0E-01 CHLORYRIENE 5000.62 3 3.0E-01 SOROLOS 3 3.0E-01 3.0E-01 AVILLARENE 5000.62 3 5.7E-06 1.0E-01	33	_
BENZOIC ACID 263587 8 6 4 .0E + 00 CRESOL, o - 271592.5 6 4 .0E + 00 ENDRIANTHENE 42801.58 6 4 .0E - 02 FLUORANTHENE 42801.58 6 4 .0E - 02 CHLOROANILINE, p - 42801.58 5 ND 1 .0E - 01 DI-N - BUTYL PHITHALATE 68172.03 5 2 .0E - 01 3 .0E - 02 DI-N - BUTYL PHITHALATE 68172.03 5 2 .0E - 01 1 .0E - 01 TRICHIOROFILUOROMETHANE 5000.62 4 2 .0E - 01 3 .0E - 01 TETRACHLOROMETHANE 5000.62 4 2 .0E - 01 3 .0E - 01 XYLENE, m - 5000.62 3 3 .0E - 01 3 .0E - 01 XYLENE, m - 5000.62 3 3 .0E - 01 3 .0E - 01 SOBUTYL ALCOHOL 5000.62 3 ND 2 .0E - 01 STYRENE 57.E - 05 ND 2 .0E - 01 3 .0E - 01 AXINTHAGENE 42801.58 ND 2 .0E - 01 3 .0E - 01 AXINTHAGENE <td>2</td> <td>' '</td>	2	' '
CRESOL, o- CRESOL,	3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	V
ENDRIN 84.95 6 3.0E-04 CHUORANITHENE 42801.58 6 4.0E-02 CHLOCANILINE, P-42801.58 6 4.0E-03 OCHLOROANILINE, P-42801.58 6 4.0E-03 PYRENE 4.2801.58 5 ND 1.0E-01 PYRENE 5000.62 5 2.0E-01 3.0E-01 ETHYLBENZENE 500.62 4 2.9E-01 1.0E-01 HEPTACHLOROEITANNE 500.62 4 2.9E-01 1.0E-01 TRICHLOROEITANNE 5000.62 3 3.0E-01 1.0E-01 XYLENE, O- and p- 5000.62 3 ND 2.0E-00 SOBUTYL ALCOHOL 5000.62 3 ND 2.0E-01 SYLENE, O- and p- 5000.62 3 ND 2.0E-01 AXINENE, O- and p- 5000.62 3 ND 2.0E-01 AXIENE, O- and p- 500.62 3 ND 2.0E-01 AXIENE, O- and p- 500.62 3 ND 2.0E-02 AXIENE, O- and p-<	2	V
FLUORANTHENE 42801 58 6 4 0E 02 CHLORANILINE P - 42801 58 6 4 0E 02 CHLOROANILINE P - 42801 58 5 ND 1 0E 01 PURENE 42801 58 5 ND 1 0E 01 PRENE 108.71 4 2 9E 01 1 0E 01 FIRICHLOROELUDROMETHANE 5000 62 4 2 0E 01 1 0E 01 FETHYLBENZENE 108.71 4 2 0E 01 1 0E 01 HEPTACHLOROETHANE 5000 62 3 3.0E 03 3 0E 01 SYLENE m - 5064.36 4 2 0E 01 CHLORDYRIECS 5000 62 3 0E 01 STYRENE 5000.62 3 0D 0 1 0E 02 STYRENE ACETOHENONE 4800.58 2 0E 00 1 0E 01 ACETOHENONE 42801.58 2 0E 01 1 0E 01 1 0E 01 ACINPHOS METHYL 645.97 2 0E 01 1 0E 01 1 0E 01 ALICHORDENZENE 1,4 - 506.36 2 0E 01 1 0E 01 ALICHOROBENZ	1E-0 5E-0 5E-0 9E-0	
CHLOROANILINE, p— 42801 58 5 ND 40E-01 DI-N-BUTYL PHTHALATE 68172.03 5 ND 1.0E-01 PYRENE 42801 58 5 2.0E-01 3.0E-02 FIRCHLOROFLUOROMETHANE 5000.62 4 2.0E-01 3.0E-01 FETHACHLOROMETHANE 5000.62 4 2.0E-01 3.0E-01 ETHYLBENZENE 5000.62 4 2.0E-01 3.0E-01 ETHYLBENZENE 5000.62 4 2.0E-01 3.0E-01 XYLENE, m- 5000.62 3 3.0E-01 3.0E-01 ZYLENE, m- 5000.62 3 3.0E-01 3.0E-01 SYLENE, m- 5000.62 3 3.0E-01 3.0E-01 SYLENE, m- 54538.92 3 3.0E-01 3.0E-01 SYLENE, m- 54538.92 3 3.0E-01 3.0E-01 SYLENE, m- 42801.58 2 5.7E-06 1.0E-01 AXHENE, o- and p- 42801.58 2 5.7E-03 3.0E-01 ANTHRACEN	0- <u>36</u> 0- <u>89</u> 0- <u>89</u>	v
DI-N-BUTYL PHTHALATE 681722 03 5 ND 4.0E-03 PYRENE 42801.58 5 2.0E-01 3.0E-01 TRICHLOROFLUCROMETHANE 5000.62 5 2.0E-01 3.0E-01 ETHYLBENZENE 5012.94 4 2.9E-01 1.0E-01 HEPTACHLOROMETHANE 5000.62 4 2.0E-01 3.0E-01 XYLENE 343.87 3 3.0E-01 3.0E-01 CHLORPYRIFCS 343.89 3 3.0E-03 3.0E-03 SINDIALIN (TREFLAN) 271.62 3 3.0E-01 STYLENE 42801.58 2 5.7E-06 1.0E-01 ANTHRACEN 42801.58 2 5.7E-06 1.0E-01 ANTHRACEN 42801.58 2 5.7E-06 1.0E-01 BHC, delta 5064.36 2 5.7E-03 9.0E-04 DIOXANE, 1.4- 5064.36 2 5.7E-03 9.0E-02 BHC, DUBRONA 42801.58 2 2.0E-01 7.0E-01 ANALED (DIBROM) 42801.5	0-36 0-6-0	0.01
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TRICHLOROFLUDROMETHANE 5000 62 5 2.0E-01 3.0E-02 ETHYLBENZENE 108.71 4 2.9E-01 1.0E-01 ETHYLBENZENE 108.71 4 2.9E-01 1.0E-02 HEPTACHLOROMETHANE 5000.62 4 2.0E-03 1.0E-03 XYLENE, m- 5064.36 4 2.0E+00 2.0E+00 XYLENE, m- 5060.62 3 3.0E-03 3.0E-03 SYNENE 3.0E-03 3.0E-03 3.0E-03 3.0E-03 STYRENE 5000.62 3 ND 2.0E+00 STYRENE 5000.62 3 ND 2.0E-01 ACETOPHENONE 42801.58 2 5.7E-06 1.0E-02 ACETOPHENONE 42801.58 2 5.7E-06 7.5E-03 ACETOPHENONE 42801.58 2 5.7E-06 7.5E-03 BHC, delta- 136.63 2 5.7E-06 7.0E-01 DIOXANE, 1,4- 5064.36 2 5.7E-03 2.0E-03 BENZYLALOROHOL <		< 0.01
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FILE PROVIDE	6E-05	
TETRACHLOROMETHANE 108.71 4 1.3E - 0.5 TETRACHLOROMETHANE 5000.62 4 7.0E - 0.4 TETRACHLOROMETHANE 5000.62 3 3.0E - 0.1 SOBUTYL ALCOHOL 5000.62 3 0.0E - 0.1 TETRACHLOROETHENE 5000.62 3 0.0E - 0.1 TETRACHLOROENE 42801.58 2 5.7E - 0.8 TETRACHLOROENE 42801.58 2 0.0E - 0.1 TETRACHLOROENE 42801.58 1 0.0E - 0.1 TETRACHLOROENE 600.62 0.0E - 0.1 TETRACHOROENE 0.0E - 0.1 TETRACHOROENE 0.0E - 0.1 TETRACHOROENE		\
Valency Vale	9.1E+00 9.1E+00 1E-06	
AYLENE, m- 5064.36 4 2.0E+00 CHLORPYRIFOS 343.87 3 30E-03 SIOBUTYL ALCOHOL 5000.62 3 30E-01 STYRENE 54538.92 3 ND 2.0E-01 TETRACHLOROETHENE 5000.62 3 ND 2.0E-01 TRIFLURALIN (TREFLAN) 271.62 3 ND 7.5E-03 TRIFLURALIN (TREFLAN) 2000.62 3 ND 7.5E-03 AXLENE, o- and p- 2000.62 3 ND 7.5E-03 AXLENE, o- and p- 2000.62 3 ND 7.5E-03 ACETOPHENONE 42801.58 2 5.7E-06 1.0E-01 ANTHRACENE 42801.58 2 5.7E-03 2.0E-02 BHC, delta- 136.65 2 5.7E-03 2.0E-02 DIOAZINON 258.39 2 5.7E-03 2.0E-02 DIOXANE, 1.4- 5064.36 2 5.7E-03 2.0E-02 BENZYL ALCOHOL 42801.58 2 2.0E-01 7.	1.3E-01	E 00 0
CHLUMPYHILOS 343.87 3 30.6-03 ISOBUTYL ALCOHOL 5000.62 3 3.0E-01 STYRENE 54538.92 3 ND 2.0E-01 TETRACHLOROETHENE 5000.62 3 ND 7.5E-03 TRIFLURALIN (TREFLAN) 271.62 3 ND 7.5E-03 TRIFLURALIN (TREFLAN) 271.62 3 ND 7.5E-03 ACETOPHENONE 42801.58 2 5.7E-06 1.0E-01 ACTOPHONE 42801.58 2 7.5E-03 AZINPHOS METHYL 42801.59 2 5.7E-06 1.0E-01 BHC, delta- 136.65 2 5.7E-03 2.0E-02 CHLOROBENZENE 1,4- 42801.58 2 5.7E-03 2.0E-02 DIOXANE, 1,4- 5064.36 2 5.7E-03 2.0E-02 3.0E-02 NALCHOROBENZENE 1,4- 5064.36 2 ND 4.0E-02 BENZYLALOCHOL 42809.81 1 1.0E-02 BIPHENYL 42809.81	6E-05	1002
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STYRENE 54538.92 3 ND 2.0E-01 TETRACHLOROETHENE 5000.62 3 1.0E-02 TRIFLURALIN (TREFLAN) 271.62 3 ND 7.5E-03 XYLENE, o - and p- 5000.62 3 2.0E+00 ACTOPHENONE 42801.58 2 5.7E-06 1.0E-01 ACTOPHENONE 42801.58 2 ND 3.0E-01 AZINPHOS METHYL 645.97 2 5.7E-03 2.0E-02 BHC, delta- 138.65 2 5.7E-03 2.0E-02 CHLOROBENZENE 1,4- 42801.58 2 5.7E-03 2.0E-02 DICHLOROBENZENE 1,4- 42801.58 2 2.0E-01 7.0E-01 DICHLOROBENZENE 1,4- 5064.36 2 2.0E-03 2.0E-03 DICHLOROBENZENE 1,4- 5064.36 2 2.0E-01 7.0E-01 BOICHLOROBENZENE 1,4- 5064.36 2 ND 4.0E-02 BENZYLALOCHOL 42809.81 1 1.0E-02		
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TRIFLURALIN (TREFLAN) 271.62 3 ND 7.5E-03 XYLENE, o - and p-ACETOPHENONE 42801.58 2 5.7E-06 1.0E-01 ACETOPHENONE 42801.58 2 5.7E-06 1.0E-01 ANTHRACENE 42801.58 2 ND 3.0E-01 ANTHRACENE 645.97 2 7.5E-03 BHC, delta - 138.65 2 5.7E-03 2.0E-01 CHLOROBENZENE 5012.94 2 5.7E-03 2.0E-02 DIOXANE, 1.4- 258.39 2 2.0E-01 7.0E-01 DIOXANE, 1.4- 5064.36 2 2.0E-01 7.0E-01 NALED (DIBROM) 1756.88 2 2.0E-01 7.0E-02 NALED (DIBROM) 1756.88 2 2.0E-01 7.0E-02 SANTOX (EPN) 258.81 2 1.0E-02 BENZYL ALCOHOL 42809.81 1 ND 5.0E-02 CHLOROFORM 5052.05 1 ND 6.0E-02 CHLOROPORAPHTHALENE, 2- 42801.58 1		>
XYLENE, o – and p – 5000.62 3 2.0E+00 ACETOPHENONE 42801.58 2 5.7E-06 1.0E-01 ANTHRACENE 42801.58 2 ND 3.0E-01 AZINPHOS METHYL 645.97 2 7.5E-03 BHC, delta – 136.65 2 2.0E-01 CHLOROBENZENE 5012.94 2 5.7E-03 DIAZINON 258.39 2 9.0E-04 DICHLOROBENZENE, 1,4- 42801.58 2 2.0E-01 DIOXANE, 1,4- 5064.36 2 2.0E-01 NALED (DIBROM) 1756.88 2 2.0E-01 NALED (DIBROM) 1756.88 2 2.0E-01 NAHTHALENE 42801.58 2 1.0E-02 SANTOX (EPN) 258.81 2 1.0E-02 BIPHENYL 43256.26 1 ND 5.0E-02 CHLOROFORM 5052.05 1 1.0E-02 B.0E-02 1 1.0E-02 B.0E-02 1.0E-02 B.0E-02	7 7 7 5 0 9	10.0 >
ACETOPHENONE 42801.58 2 5.7E-06 1.0E-01 ANTHRACENE 42801.58 2 ND 3.0E-01 AZINPHOS METHYL 645.97 2 ND 7.5E-03 BHC, delta- 136.65 2 5.7E-03 20E-01 CHLOROBENZENE 5012.94 2 5.7E-03 20E-02 DIAZINON 258.39 2 9.0E-04 DICHLOROBENZENE, 1,4- 42801.58 2 2.0E-01 7.0E-01 DICHLOROBENZENE, 1,4- 5064.36 2 2.0E-01 7.0E-01 DICKANE, 1,4- 5064.36 2 2.0E-01 7.0E-01 NALED (DIBROM) 1756.88 2 ND 4.0E-02 SANTOX (EPN) 258.81 2 1.0E-02 BIPHENYL 43256.26 1 ND 5.0E-02 CHLOROFORM 5052.05 1 ND 5.0E-02 CHLOROPAPHTHALENE, 2- 42801.58 1 ND 1.0E-02		10.0 >
ANTHRACENE 42801.58 2 ND 3:0E-01 AZINPHOS METHYL 645.97 2 ND 3:0E-01 BHC, delta- 136.65 2 2 7:5E-03 BHC, delta- 136.65 2 2 7:5E-03 BHC, delta- 136.65 2 2 20E-02 CHLOROBENZENE 2 2 57E-03 20E-02 DIAZINON 258.39 2 2.0E-01 7.0E-01 DICHLOROBENZENE, 1,4- 5064.36 2 2.0E-01 7.0E-01 NALED (DIBROM) 1756.88 2 2.0E-01 7.0E-01 NALED (DIBROM) 1756.88 2 2.0E-02 SANTOX (EPN) 258.81 2 1.0E-02 BENZYL ALCOHOL 43256.26 1 ND 5.0E-02 CHLOROFORM 5052.05 1 ND 1.0E-02 CHLOROFORM 5052.05 1 ND 1.0E-02		v
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BENZYL ALCOHOL 42803.81 2 1.0E-05 BIPHENYL 43256.26 1 ND 5.0E-01 CHLOROFORM 5052.05 1 ND 1.0E-02 CHLORONAPHTHALENE, 2- 42801.58 1 8.0E-02	0-36	0.01
BIPHENYL 4286.26 1 ND 5.0E-02 CHLOROFORM 5052.05 1 ND 5.0E-02 CHLORONAPHTHALENE, 2- 42801.58 1 8.0E-02	3E -06	0.3
CHLOROPORAM 5052.05 1 ND 5.0E-02 CHLORONAPHTHALENE, 2- 42801.58 1 8.0E-02	5E-0	< 0.01
CHLORONAPHTHALENE, 2- 42801.58 1 8.0E-02		0.01
CHLUHUNAPH I HALENE, 2 — 42801.58	8.1E-02 6.1E-03 6E-0	
	5E-0	< 0.01
DICHLOHOEI HENE, trans-1,2- 5052.05	0-19	
UIME I HOA I E 260.16 1	3E-0	:
DIMETHYL PHTHALATE 42801.58 1 ND		
DI-N-OCTYL PHTHALATE 42801.58	14F-02	:
ENDOSULFAN-I		0.03
N-NITROSODIPHENYLAMINE 85603.17	4 9F - 03	70.0
DON 1550.13	20 10	14
109068 PICOLINE, 2— 214049.0 1	O- UZ	0.10

Screening Analysis Based on Cancer Potency Slopes

The second screening analysis EPA conducted consisted of identifying those pollutants with relatively high cancer potency slopes. As shown in Exhibit A-1, four pollutants, aldrin, dieldrin, heptachlor epoxide, and benzo(a)pyrene, have relatively large q_1^* values. These pollutants were evaluated further.

Although aldrin and dieldrin are both insecticides, they are often evaluated together, as aldrin/dieldrin, because dieldrin is an environmental degradation product of aldrin. In addition, aldrin and dieldrin have the same human health toxicity values. In Round One, aldrin/dieldrin were evaluated for Pathways 1 through 11, but not 12, 13, or 14.

Given the $\log(K_{ow})$ value for dieldrin is greater than five, aldrin/dieldrin might pose an unacceptable risk by sorbing to particles that subsequently erode and enter a stream. Aldrin/dieldrin is not expected to leach significantly to groundwater, given the high $\log(K_{ow})$ value. However, aldrin/dieldrin might also pose an unacceptable risk through volatilization. Therefore, EPA evaluated risks from Pathway 12 and Pathway 13 for aldrin/dieldrin using the assumptions and equations presented in Sections 4.2.12 and 4.2.13, respectively.

To correspond to the methods used in the Comprehensive Hazard Identification exercise, the 95th percentile pollutant concentrations with the non-detect values set equal to the minimum detection level were used. The pollutant-specific data for both pathways are presented in Exhibit A-3.

EXHIBIT A-3
Pollutant-Specific Data Required for Pathways 12 and 13

Parameter	Aldrin/Dieldrin
95th percentile concentration (mg/kg)	0.04861
log (K _{ow})	5.48 ²
K_d (L/kg)	1173³
Henry's Law constant (atm-m³/mol)	1.1x10 ^{-5 (2)}
K _{deg} (yr ⁻¹)	04
Diffusivity in Air (cm ² /sec)	4x10 ^{-2 (3)}
BCF (L/kg)	3400³
FM (dimensionless)	10

¹ Composite aldrin/dieldrin concentration from 1988 NSSS.

² Schwarzenbach et al., 1993.

³ Calculated using equations in Section 4.2.12.

⁴ Howard, 1991.

Results of the analysis are presented in Exhibit A-4 for Pathway 12 and Exhibit A-5 for Pathway 13. For Pathway 12, the individual cancer risks range from $7x10^{-9}$ for reclamation sites to $2x10^{-8}$ for other land application sites. For Pathway 13, individual cancer risks range from $9x10^{-8}$ for agricultural land to $1x10^{-6}$ for reclamation sites.

EXHIBIT A-4
Individual Cancer Risks for Aldrin/Dieldrin from Pathway 12

Agricultural Land	Forest	Reclamation Site	Public Contact Site
2x10 ⁻⁸	2x10 ⁻⁸	7x10 ⁻⁹	2x10 ⁻⁸

EXHIBIT A-5
Individual Cancer Risks for Aldrin/Dieldrin from Pathway 13

Agricultural Land	Forest	Reclamation Site	Public Contact Site
9x10 ⁻⁸	4x10 ⁻⁷	1x10 ⁻⁶	2x10 ⁻⁷

For heptachlor epoxide, the individual risk for a child directly ingesting sewage sludge (Pathway 3) was calculated above to be 9×10^{-7} (Exhibit A-2). Given the low magnitude of the risk, this pollutant was not evaluated further.

Benzo(a)pyrene was fully evaluated for all land application pathways in Round One except Pathway 11 (tractor driver). Benzo(a)pyrene cannot be considered further in Round Two for Pathway 11, however, because there is not a Threshold Limit Value for this pollutant to be evaluated under Pathway 11.

APPENDIX B

STATISTICAL ANALYSES OF THE NATIONAL SEWAGE SLUDGE SURVEY DATA

Final Report:

Percentile Estimates Used to Develop the List of Pollutants

for Round Two of the Part 503 Regulation

Submitted to:

Environmental Protection Agency Office of Science and Technology Engineering and Analysis Division 401 M Street, SW. (4303) Washington, DC 20460

Submitted by:

Health and Environment Studies and Systems Division Science Applications International Corporation 1710 Goodridge Drive McLean, VA 22102

> EPA Contract No. 68-C4-0046 SAIC Project No. 01-0813-07-5046-010



I. INTRODUCTION

In February, 1993, the Environmental Protection Agency (EPA) promulgated limits for nine toxic pollutants in sewage sludge. These limits which were issued by EPA under the authority of section 405(d) Clean Water Act, as amended, are referred to as the "Round One" sewage sludge regulation. In May, 1993, the EPA submitted to the court a list of 31 candidate pollutants for "Round Two" regulations. This report presents percentile estimates used to develop the list of pollutants for Round Two of the Part 503 Regulation. All elements, compounds, or solids physically measured will be referred to in this report as pollutants. The term pollutant is used here to mean only that a substance, in certain quantities, could cause harm to human health or the environment; not that it will cause harm to human health or the environment.

Data analyzed to produce these pollutant concentration percentile estimates are from the EPA's 1988 National Sewage Sludge Survey (NSSS). Section II briefly describes the NSSS. Data conventions are presented in Section III. Section IV provides the statistical methodology employed to produce the percentile estimates. And finally, Section V presents tabulated percentile estimates.

II. EPA's 1988 NATIONAL SEWAGE SLUDGE SURVEY

To support Round One and Two regulatory development efforts, the EPA's 1988 NSSS collected sewage sludge quality and pollutant occurrence data from a national probability sample of Publicly Owned Treatment Works (POTWs) practicing at least secondary treatment of wastewater. Operationally, secondary treatment was defined as a primary clarifier process followed by biological treatment and secondary clarification. In 1988, 11,407 POTWs in the 50 States, Puerto Rico, and the District of Columbia met this criteria.

A statistical probability sample of 208 POTWs in the contiguous states and the District of Columbia comprised the analytical component of the 1988 NSSS. These POTWs were randomly drawn from secondary or higher treatment POTWs which were categorized into one of four strata based on their average daily flow rate. These strata are defined as follows:

- 1) Flow greater than 100 million gallons per day (MGD)
- 2) Flow more than 10 MGD but less than or equal to 100 MGD
- 3) Flow more than 1 MGD but less than or equal to 10 MGD
- 4) Flow less than or equal to 1 MGD.

EPA contract personnel collected sewage sludge samples from 180 POTWs in the analytical component of the NSSS. Samples were collected just prior to use or disposal of the sewage sludge. All sample collection and preservation was conducted according to protocol. Contract laboratories analyzed each sewage sludge sample for 412 analytes. EPA adapted analytical methods 1624 and 1625 to allow volatile and semi-volatile organic analytes to be quantified from the sewage sludge matrix. Pesticides and polychlorinated biphenyls (PCBs) were quantified

according to EPA method 1618; method 1613 measured dibenzofurans and dioxins; metals, other inorganics, and classicals were quantified according to standard EPA methods. All chemical analysis methods were either developed, chosen, or adapted to allow for the most reliable and accurate measurement of the 412 analytes in the sewage sludge matrix.

A more detailed discussion the NSSS sampling plan, POTWs, and data is included in a November, 1992 final report entitled "Statistical Support Documentation for the 40 CFR, Part 503 Final Standards for the Use or Disposal of Sewage Sludge."

III. DATA CONVENTIONS

A total of 208 POTWs were selected for sampling as part of the analytical component of the 1988 NSSS. However, 32 POTWs were excluded from the statistical analyses because sewage sludge samples were not obtained after the completion of secondary treatment of wastewater. POTWs that were selected for the NSSS but excluded from the statistical analyses are listed on Table 1. The EPISODE number listed on Table 1 designates the POTW's identification number in the analytical survey. An episode number of "0" indicates that the POTW was selected for sampling as part of the analytical probability sample but samples of sewage sludge were not collected.

The reported national pollutant concentration estimates were calculated from a sample of 176 POTWs. These estimates apply to a population of 7,750 POTWs that practiced at least secondary treatment of wastewater during 1988. Pesticides were not quantified for SurveyID 35-38-348 (Episode=1565.) Therefore, estimates for pesticides reported on the tables result from a sample of 175 POTWs and are projected to a population of 7,720 POTWs in the Nation. Sewage sludge samples from SurveyIDs 23-07-036 (Episode=1554) and 35-05-012 (Episode=1561) were not analyzed for the dioxin/furans. Therefore the dioxin estimates, generated from a sample of 174 POTWs, apply to a population of 7,714 POTWs. Adjusted stratum weights for each sample size are tabulated below.

ADJUSTED WEIGHTS for STRATA (w_i) by Sample Size

STRATUM	Sample size = 174	Sample size = 175	Sample size = 176
1	27/7,714	27/7,720	27/7,750
2	301/7,714	307/7,720	307/7,750
3	1,838/7,714	1,838/7,720	1,868/7,750
4	5,548/7,714	5,548/7,720	5,548/7,750

In the NSSS, if a pollutant was measured above the Minimum Level, as adjusted for interferences, then the measure is considered a detection. In the August, 1989 document titled "Analytical Methods for the National Sewage Sludge Survey," the EPA's Industrial Technology Division defines a Minimum Level for pollutants quantified by gas chromatography combined with mass spectrometry (GCMS) as the level at which " the entire analytical system shall give recognizable mass spectra and acceptable calibration points." For elemental pollutants, the Minimum Level is defined as "the minimum concentration of substance that can be measured and reported in 99% confidence that the value is above zero." The final report for Round One Part 503 regulations refers to the Minimum Level as "roughly equivalent to the minimum concentration or amount of pollutant that could be measured."

If a pollutant was not measured above the Minimum Level, then estimates were generated using two substitution methods. One set of estimate were produced using the value of the Minimum Level for those samples for which the pollutant was considered to be an non-detect. The second set of estimates substituted zero for pollutant concentration value for those samples from which a pollutant was not quantified above the Minimum Level. Tabulated results identify the substitution method employed for the reported set of estimates.

Prior to calculating the estimates, pollutant concentrations were aggregated on a POTW basis to form one concentration value per POTW for each pollutant. Field duplicate samples were averaged together. For POTWs with multiple treatment trains, sample measurements on pollutant concentrations were averaged together, using a weighted average based on the dry weight of sewage sludge disposed by the treatment train associated with each sample. Primary samples were dropped from analysis. The quality of these primary sludges is different than that associated with secondary treatment. Because the percent solids in sampled sewage sludge ranged from less than one percent to 100 percent, reported pollutant concentrations were transformed to dry weight units as a function of the sample's percent solids. This transformation allows a standardized basis for evaluating pollutant loads. Implicit is the assumption that pollutants are associated with the solid phase of sewage sludge.

The dioxins and furans are reported individually and in aggregate. Aggregates were mathematically created using the following method. After each congener was aggregated on a POTW basis, the concentration of the congener for each POTW was multiplied by the congener's corresponding 1989 NATO Toxicity Equivalence Factor (TEF.) The TEF's which are based on the toxicity of 2,3,7,8 TCDD are listed in Table 2. The resulting TEF adjusted values were then summed over all congeners for each POTW to create the POTW composite dioxin concentration. Two conventions were used to determine if composite dioxin was a detect for a POTW. For the first convention, the composite dioxin was considered a detect if all of the individual congeners were detected above the Minimum Level. The estimate for this method is designated on the tables as "dioxin*." For the second method of determining a detection for the composite dioxin, the composite dioxin was considered a detect if at least one of the individual congeners was detected above the Minimum Level. This estimate is designated "dioxin*." TEF adjusted estimates of the individual congeners appear in Section V.

PCBs were also mathematically aggregated. These aggregates were generated as described above with the exception that the individual PCB's were not multiplied by a toxicity equivalence factor.

IV. STATISTICAL METHODS

Percentile estimates were calculated using the nonparametric, weighted cumulative distribution function (CDF) technique. Denote the dry weight concentration of a given pollutant in the sampled sewage sludge from the j^{th} POTW in the i^{th} survey flow stratum as X_{ij} . The values of the variable X_{ij} were then sorted in order of increasing concentration. The values of the adjusted survey weights (w_i) associated with the ordered values of X_{ij} are then summed until the first occurrence of p.

If X_p is defined as the concentration of the p^{th} percentile then,

$$X_p = F(X) \ge p \text{ where } F(X) = \sum_{i=1}^4 w_i F_i(X)$$

with

$$F_i = \sum_{j=1}^{n_{ij}} \frac{I(X_{ij} \le x)}{n_{ij}}$$

and
$$I(X_{ij} \le x)$$
 = 1 if $X_{ij} \le x$ for $x \ge 0$
= 0 otherwise.

To determine the pollutant concentration associated with the p^{th} percentile, an inverse function was applied to the cumulative distribution function. Define the p^{th} percentile as $F_x(x_p)$ such that $P[X \le x_p] \ge p/100$. The inverse of this function $F^1(p)$, is the smallest value of x satisfying $F_x(x) \ge p$ where p is the desired percentile point (P) divided by 100.

Because the cumulative distribution created by application of the formula in the previous section is empirical, integer valued percentile points are not always realized in the data. The convention applied to determine the concentration associated with the p^{th} integer percentile from the empirical distribution function was to determine the smallest concentration value x such that $F_x(x) > p$. This value was denoted x_{p+} and is the q^{th} ordered concentration. The next smallest concentration from x_{p+} , or the concentration associated with the (q-1)st ordered concentration was then defined. The concentration value for the p^{th} percentile was obtained using linear interpolation between the q^{th} and (q-1) values.

Nonparametric estimates of pollutant concentration means and standard deviations are also reported in the tables. Retaining the definition of X_{ij} as the dry weight concentration of a given

pollutant in the sampled sewage sludge from the j^{th} POTW in the i^{th} survey stratum and w_i as the adjusted survey weight for the i^{th} stratum, then the mean pollutant concentration was estimated as listed on the next page.

$$E(X) = \sum_{i=1}^{4} w_i \frac{\sum_{j=1}^{n_{ij}} X_{ij}}{n_{ij}}.$$

The pollutant concentration standard deviation was estimated as the square root of the method of moments estimator of the variance. That is:

$$V(X)^{1/2} = \left[\sum_{i=1}^{4} w_{i} \sum_{j=1}^{n_{ij}} \frac{X_{ij}^{2}}{n_{ij}} - [E(X)]^{2} \right]^{1/2}.$$

V. POLLUTANT CONCENTRATION PERCENTILE ESTIMATES

Tables 3 and 4 present pollutant concentration percentile estimates for pollutants from the 1988 National Sewage Sludge Survey (NSSS.) Taking into account the individual dioxin and furan congeners and the PCB aroclors, Tables 3 and 4 present concentration estimates for 353 pollutants. The listing of pollutants is ordered by percent detection. The ordering is from highest to lowest detection rates in the nation. Excluded from this listing are the metals regulated in Round One, and the 42 semiquantitative metals listed on Table 5. Of the 42 semiquantitative metals, 36 had no quantitative measurements recorded in the NSSS database. Of the remaining six, potassium and iodine had one recorded measure while silicon, strontium, and sulfur had measurements recorded for two samples. All other samples were missing measurements. This precluded estimation of pollutant concentrations. Estimates of phosphorus concentrations were generated from data collected using colorimetric method 365.2 as reported in EPA's August, 1989 "Analytical Method for the National Sewage Sludge Survey."

For each pollutant, the tables report the following: pollutant type, unit of measure, sample size, an estimate of the national percent detect, mean, standard deviation, the observed maximum, and the 99th, 95th, 95th, 95th and median percentiles estimated from empirical national, cumulative distributions of pollutant concentrations. The column labeled "Sample size" records the number of POTWs in the NSSS from which data were used to generate the reported estimates.

Table 3 is subtitled "Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level." The nonparametric estimation procedure is that described in Section IV.

The substitution of nondetects set to Minimum Levels indicates that Minimum Level of a pollutant was used in the estimation procedure for those samples that were not quantified above the pollutant's Minimum Level of detection. Estimates on Table 4 were generated using the value zero for samples from which a pollutant was not quantified above the Minimum Level.

Tables 3 and 4 indicate that there are 45 tested pollutants detected at an estimated national rate of ten percent or higher from sewage sludge resulting from secondary or higher treatment of wastewater in 1988. EPA used this list of pollutants in conjunction with human health and ecological toxicity data to select the 31 candidate pollutants for Round Two regulation.

TABLE 1.

LISTING OF POTWS EXCLUDED FROM PERCENTILE ESTIMATION

	_		
SURVEYID	EPISODE	REASON	FLOW STRATUM
12-49-455	0	Ineligible/Out of Business	1
21-25-234	0	Not sampled	2
25-38-345	0	Ineligible/Out of Business	2
25-50-472	1386	Only primary sludge sampled	2
31-18-140	1477	Data not entered into database	3
31-23-206	1398	Only primary sludge sampled	3
41-24-215	0	Not sampled	4
41-36-312	0	Not sampled	4
45-02-005	0	Wastewater Stabilization pond (WWSP)	4
45-11-064	0	WWSP	4
45-13-083	0	WWSP	4
45-13-089	0	WWSP	4
45-14-092	00	WWSP	4
45-15-112	00	WWSP	4
45-16-130	00	WWSP	4
45-17-131	00	WWSP	4
45-19-154	00	WWSP	4
45-23-208	0	WWSP	4
45-24-220	0	WWSP	4
45-25-229	0	Ineligible/Out of Business	4
45-25-231	0	WWSP	4
45-26-237	0	WWSP	4

45 20 246	0	WAVED	
45-28-246	0	WWSP	4
45-29-248	0	WWSP	4
45-30-253	0	WWSP	4
45-37-339	0	Not sampled	4
45-42-387	0	Ineligible/Out of Business	4
45-42-392	. 1488	Ineligible/Out of Business	4
45-45-415	0	WWSP	4
45-45-423	0	Not sampled	4
45-50-463	0	Not sampled	4
45-50-474	0	WWSP	4

TABLE 2 1989 NATO TOXICITY EQUIVALENCY FACTORS

CONGENER	TEF
Octachlorodibenzo-p-dioxin	0.001
Octachlorodibenzofuran	0.001
1,2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin	0.010
1,2,3,4,6,7,8-Heptachlorodibenzofuran	0.010
1,2,3,4,7,8-Hexachlorodibenzo-p-dioxin	0.100
1,2,3,4,7,8-Hexachlorodibenzofuran	0.100
1,2,3,4,7,8,9-Heptachlorodibenzofuran	0.010
1,2,3,6,7,8-Hexachlorodibenzo-p-dioxin	0.100
1,2,3,6,7,8-Hexachlorodibenzofuran	0.100
1,2,3,7,8-Pentachlorodibenzo-p-dioxin	0.500
1,2,3,7,8-Pentachlorodibenzofuran	0.050
1,2,3,7,8,9-Hexachlorodibenzo-p-dioxin	0.100
1,2,3,7,8,9-Hexachlorodibenzofuran	0.100
2,3,4,6,7,8-Hexachlorodibenzofuran	0.100
2,3,4,7,8-Pentachlorodibenzofuran	0.500
2,3,7,8-Tetrachlorodibenzo-p-dioxin	1.000
2,3,7,8,-Tetrachlorodibenzofuran	0.100

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

			Sample		Percent		Standard	Observed	99th	98th	95th	4100	400
Pollutant	Type	Unit	Size	POTWs	Detect	Mean	Devlation	Maximum	Parcantile	Derconfile			u)ne
											rercentite	rercentile	Percentile
CALCIUM	Metals	MG/KG	176	7750	9	35,300,00	46 500 00	333 000 00	212 000 00	747			
RON	Metals	MG/KG	176	7750	5	18,000,00		00.000,000	313,000.00	00.000,161	84,600.00	68,600.00	26,200.00
MAGNESIUM	Matale	MCMC	470	1760		00.000,01	20.00.	223,000.00	61,400.00	79,900.00	29,800.00	41,700.00	12,400.00
of lacetd SUHA			2	3	3	7,460.00	17,600.00	134,000.00	75,500.00	30,700.00	17,500.00	9,750.00	4.270.00
	Metais	MG/KG	176	7750	<u>5</u>	4,580.00	9,870.00	71,700.00	42,600.00	17,600.00	13,400,00	12,100,00	1100
WOODS.	Metais	MG/KG	178	7750	6	7,970.00	19,600.00	141,000.00	103,000,00	49,100,00	21 400 00	17 200 000	9000
ALUMINOM	Metais	MG/KG	178	7750	5	11,200.00	14,800.00	92,700.00	85,300,00	70,200,00	36.400.00	10 40 00	7,850,00
BARIUM	Metals	MG/KG	178	7750	5	673.00	640.00	5,570.00	3,000,00	2 370 00	1 720.00	1 230 00	000000
dioxins b	Dioxins	NG/KG	174	7714	5	80.40	172.00	1.820.00	558.00	00 CE	911.00	246.00	
MANGANESE	Metals	MG/KG	178	7750	5	538.00	1,040.00	13,200,00	4.080.00	3 720 00	31.00	218.00	9
OCTACHLORODIBENZO-P-DIOXIN	Dioxins	NG/KG	174	7714	5	11.70	59.20	805.00	127.00	118.00	020.02	00.828	7/8.00
TITANICM	Metals	MG/KG	178	7750	8	109.00	140.00	2.380.00	570.00	44	25.55	13.80	3.32
1,2,3,4,8,7,8-HEPTACHLORODIBENZO-P-DIOXIN	Dioxims	NG/KG	174	7714	8	9.52	37.00	525.00	103.00		22.00	237.00	8
NITRATE	Classicals	MG/KG	178	7750	88	1,420.00	5,040.00	35,300.00	26,500,00	15.500.00	8.12	14.00	
SILVER	Metais	MG/KG	178	7750	2	48.20	112.00	852.00	248.00	218.00	128.00	75.80	
	Metals	MG/KG	178	7750	2	108.00	278.00	2,100.00	1,370.00	715.00	136.00	00 00	
MIRITE	Classicals	MG/KG	178	7750	8	201.00	1,210.00	17,700.00	2,920.00	2.910.00	462.00	218.00	8 5
OCTACHLORODIBENZOFURAN	Dioxins	NG/KG	174	7714	8	0.67	4.38	69.50	200	4.75	334		
1,2,3,4,6,7,8-HEPTACHLORODIBENZOFURAN	Dioxins	NG/KG	17	7714	7	2.31	7.14	71.00	31.50	27.60	572	90 6	750
2,3,7,8-1ETRACHLORODIBENZOFURAN	Dioxins	NG/KG	174	7714	88	2.50	3.32	33.70	14.80	14.70	7.89	4.70	
FLUORIDE	Classicals	MG/KG	176	7750	ಜ	128.00	233.00	1,510.00	1,260.00	1,040.00	411.00	319.00	5. 7
												****	!

⁽b) Composites considered a detect if at least one congener is measured above the minimum level.

^{*} Dioxins and Furans Reported as Toxic Equivalents

Note: Three significant figures are reported

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Set to the Minimum Level	
Method Estimation Procedure - Nondetect	
vonparametric Substitution	

IYLHEXYL) PHTHALATE Organics UG/KG Metals MG/KG Metals MG/KG Metals MG/KG Organics UG/KG Organics UG/KG Organics UG/KG Metals MG/KG Organics UG/KG Metals MG/KG Organics UG/KG Organics UG/KG HEXACHLORODIBENZO-P-DIOXIN Dioxins NG/KG HEXACHLORODIBENZO-P-DIOXIN Dioxins NG/KG Organics UG/KG Organics UG/KG Organics UG/KG Dioxins NG/KG Organics UG/KG Dioxins NG/KG Dioxins NG/KG Dioxins NG/KG	176 7750 176 7750 176 7750 178 7750	62 55,800.		HOLINA MARIA	rercentile	Percentile	Detrocker		
Metals MG/KG Metals MG/KG Metals MG/KG Motals MG/KG Motals MG/KG Metals MG/KG Metal							rercentile	Percentile Percentile	Percentile
Metals MG/KG Metals MG/KG Organics UG/KG Organics UG/KG HEXACHLORODIBENZO-P-DOXIN Dioxins NG/KG HEXACHLORODIBENZOFURAN Dioxins NG/KG HEXACHLORODIBENZOFURAN Dioxins NG/KG HEXACHLORODIBENZOP-DIOXIN Dioxins NG/KG	-		55,800.00 106.000 00	801 000 00					
Metals MG/KG Organics UG/KG HEXACHLORODIBENZO-P-DIOXIN Dioxins NG/KG Metals MG/KG Metals MG/KG Metals MG/KG Metals MG/KG Organics UG/KG FE CHLORIDE Organics UG/KG FE CHLORIDE Organics UG/KG FE CHLORIDE Organics UG/KG FE CHLORIDE Organics UG/KG FEXACHLORODIBENZO-P-DIOXIN Dioxins MG/KG		62	25.30 43.70	00.000,150	975,000.00	459,000.00	191,000.00	148,000.00	17.200.00
Organics UG/KG HEXACHLORODIBENZO-P-DIOXIN Dioxins NG/KG Metals MG/KG Metals MG/KG Metals MG/KG Organics UG/KG HEXACHLORODIBENZOFURAN Dioxins NG/KG HEXACHLORODIBENZO-P-DIOXIN Dioxins MG/KG HEXACHLORODIBENZO-P-DIOXIN Dioxins MG/KG		19		00'0/6	181.00	130.00	64.10	54.20	14.90
HEXACHLORODIBENZO-P-DIOXIN Dioxins NG/KG Metals NG/KG Metals NG/KG Organics UG/KG HEXACHLORODIBENZOFURAN Dioxins NG/KG HEXACHLORODISENZO-P-DIOXIN Dioxins NG/KG HEXACHLORODISENZO-P-DIOXIN Dioxins NG/KG		61 413	2,41	52.50	21.40	21.00	20.00	14.10	520
Metals NG/KG Metals NG/KG Metals NG/KG Organics UG/KG HEXACHLORODBENZOFURAN Dixins NG/KG HEXACHLORODBENZO-P-DXXIN Dixins NG/KG	176 7750	58 64.3	64 300 00 373 000 00	1,180,000.00	575,000.00	439,000.00	238,000.00	93,400.00	169000
Metals MG/KG Organics UG/KG HEXACHLORODBENZOFURAN Dioxins NG/KG HEXACHLORODBENZO-P-DIOXIN Dioxins NG/KG	174 7714		5.20 46.00	2,430,000.00	1,460,000.00	738,000.00	116,000.00	65,200.00	471000
Organics UG/KG HEXACHLORODIBENZOFURAN Dioxins NG/KG IE CHLORIDE Organics UG/KG HEXACHLORODIBENZO-P-DIOXIN Dioxins NG/KG	176 7750			73.70	58.50	47.70	13.10	9.43	2 6
TEXACHLORIDE Organics UG/KG HEXACHLOROCHBENZO-P-DIOXIN Dioxins NG/KG	176 7750		7.10 65.30	310.00	304.00	293.00	182.00	68.70	2 5
TE CHLORIDE Organics UG/KG HEXACHLORODHBENZO-P-DIOXIN Dioxins NEXAC	174 7714		<u>-</u>	1,160,000.00	542,000.00	430,000.00	306,000.00	202.000.00	11 000 00
TOWORLOWOOMBENZO-P-DIOXIN Dioxina No.	178 7750			150.00	109.00	73.20	15.40	11.00	9,000
	174 7714		<u> </u>	262,000.00	184,000.00	114,000.00	31,300.00	3.080.00	85. 20.
Metals MG/KG		8 8		73.70	22.20	19.50	13.50	500	3.50
HEYANGES (SOLUBLE SALTS AND COMPLEXES) Classicals MGMG 176				880.00	27.30	25.50	24.00	13.80	8.5
Organics UG/KG		35 48 000 00		372.00	295.00	155.00	130,00	66.40	
2. BI ITANOAKE NGINGENZOFURAN DIoxins NGING 174			ž Š	1,960,000.00	406,000.00	280,000.00	202,000.00	125,000,00	13.100.00
PHENO.		25.60		73.70	16.90	15.00	11.70	7.7	9
Organics UG/KG 178				1,540,000.00	553,000.00	544,000.00	00'006'69	36,400.00	2.550.00
234 87 9 LIEVACHIENDAYAGETIC ACID Posticidos UGIXG 178			Į	920,000.00	177,000.00	159,000.00	57,500.00	37,600.00	10 200 OD
174 Dioxins NG/KG 174			ľ	2,170.00	73.80	67.10	50.50	28.30	
1.4.3.4.1.0.8-TEPTACHLORODIBENZOFURAN Dioxins NGING 174				73.70	15.70	14.00	9.69	3	9
			0.73	8.42	2.14	1.48	121	0.78	3 2

Note: Three significant figures are reported

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

1			Sample		Dorogat								
Pollutant	Tunn	41			110010		Standard	Observed	99th	98th	0644		
	, ypc		Size	POTWS	Detect	Mean	Devlation	Maximum	Percentile	Daronallia		E 108	Soth
											rercentile	Percentile	Percentile
4.5.4.7.4.6.FEINTACHLORODIBENZOFURAN	Dioxins	NG/KG	174	7714	ä								
1,2,3,4,7,8-HEXACHLORODIBENZO-P. DIOXIN	Č			:	97	35.1	27.40	368.00	74.50	20 89	,		
REPVILLINA	Cloxins	SC/KG	174	7714	25	3.73	607	07.67		3		37.90	5.22
	Metals	MG/KG	176	7750	ć	Ì		13.70	19.00	19.00	13.60	7.87	300
1,2,3,7,8-PENTACHLORODIBENZOFURAN	C	()	: !	3	77	1.84	2.43	21.00	8.56	A 33	•		C7:7
4 0 0 0	Cloxins	NG/KG	174	7714	22	2	263	70 95		5.0	8.6	8.8	0.86
	Pesticides	UG/KG	175	7720	19	2 120 00	6	20.00	7.15	90.9	4.22	1.65	0.48
1,4,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	Dioxins	NG/KG	174	7714	. E			14,/00.00	13,400.00	12,300.00	5,400.00	3,050,00	1.490.00
ACETIC ACID (2,4-DICHLOROPHENOXY)	Pesticides	UG/KG	178	7750	2 5	18.0		368.00	68.70	60.10	39.00	16.30	7 69
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	Dioxine			3 ;	2	10.40	17.60	422.00	68.40	65.60	Ş		70.7
2,3,7,8-TETRACHI OPOCIBERIZO DI CIOCLI			*/-	114	9	3.56	89.69	128.00	24.40		3	3.6	80.0
N DEXACOSASIE	Dioxin s	NG/KG	174	7714	16	10.60	_	116.00	24.10	16.90	9.18	6.92	1.80
IN IEAN COSANE	Organics	UG/KG	178	7750	\$	11 800 00	ć	9.01	42.30	33.60	26.70	24.00	6.66
N-TETRACOSANE	Organics	UGAKG	178	7750		00.000,11	32,900.00	498,000.00	58,800.00	43,300.00	33,300.00	29.600.00	4 780 00
2,4,5-TRICHLOROPHENOXYPROPIONIC ACID	Pesticides			3	<u> </u>	14,900.00	44,200.00	650,000.00	101,000.00	87,200.00	42.800 m	30000	00.001,
THALLIUM			2	8	5	10.90	14.50	121.00	98 20		20.000	00.002,10	2,280.00
NEDODECANE	Metais	MG/KG	178	7750	5	5.20	16.90	210.00		90.10	40.00	17.30	6.28
N TOTAL CONTRACTOR	Organics	UG/KG	176	7750	7	19.800 on	42 800 00	676 000 00	06.20	29.50	10.60	8.54	2.00
N-1E I MADECANE	Organics	UG/KG	178	7750	7	14	20.000,4r	00:000,626	221,000.00	201,000.00	88,700.00	35,800.00	5,870,00
N-I RIACONTANE	Organics	UG/KG	178	7750	: \$	7,100.00	20,000,00	352,000.00	94,500.00	93,500.00	00'000'00	32,800.00	5,280,00
N-EICOSANE	Organics	UG/KG	178	7750	: :	00.000,61	42,800.00	297,000.00	158,000.00	154,000.00	37,000.00	31,100,00	48000
NHEXADECANE	Organics	UGAKG	47.	7,60	2 9	12,400.00	18,400.00	198,000.00	93,300.00	52,700.00	43,100,00	31 300 00	2000
N-OCTACOSANE		O'NO	2 5	8	12	14,600.00	20,000.00	758,000.00	121,000.00	46,800.00	33 900 00	31,300,00	2,200.00
ENDOSULFAN-I			9	8	12	12,600.00	28,800.00	413,000.00	68.100.00	43 400 00	2000	31,400.00	00'097'6
	Pesticides	CG/KG	175	7720	12	19.00	29.20	184.00	74 00	00.00±.	33,300.00	31,600.00	5,280.00
				!				AA:LA:	00.67	128.00	66 .70	41.10	10.00

(b) Composites considered a detect if at least one PCB aroclor is measured above the minimum level. Note: Three significant figures are reported

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

Pollutant	1		Sample	-	Percent		Standard	Ohearyad	1100				
	Type	C	Size	POTWs	Detect	Mean	Deviation	Total A		98th	95th	90th	50th
							Seviation.	Maximum	Percentile	Percentile	Percentile	Percentile	Percentile
CARBOIN DISULFIDE	Organics	ופיאנים	77.										
PENTACHLORONITROBENZENE			2	1/20	10	1,080.00	3,260.00	31,800,00	40.200.00				
N-DECANE	resticides UG/KG	OG/KG	175	7720	5	181 00		00.00010	19,200.00	5,400.00	3,130.00	2,080.00	408.00
PCE-1260	Organics	UG/KG	176	7750	5	12 700 00	ć	00.058,6	3,970.00	221.00	79.30	43.30	20.60
0071-701	Pesticides UG/KG	UG/KG	175	7720	\$	P. 500.00	3	199,000.00	151,000.00	81,300.00	33,300.00	30,400,00	4 780 00
COBAL	Motals	MG/KG	178	7750	2 6	337.00	•,	4,010.00	2,920.00	1,870.00	827.00	485.00	38 66
BUTYL BENZYL PHTHALATE	Organics	UG/KG	178	3 5	3 0 (23.50	30.80	262.00	107.00	104.00	1000	200	408.00
PCB-1248	_	02/01	2 ;	2	O	9,860.00	13,400.00	154,000.00	46,700.00	43,000,00	20000	01.76	11.60
N-DOCOSANE		3	2	7720	&	275.00	311.00	5 200 00	1 880 00	00.000,00	32,800.00	27,700.00	4,780.00
N-OCTADE CANE		CG/KG	176	7750	60	10.300.00	5	454,000,00	00.000,1	1,500.00	673.00	428.00	209.00
PCB 125	Organics	UG/KG	178	7750	• •	11 300 00		154,000.00	58,500.00	43,200.00	33,300.00	29,300,00	581000
#C21-001	Pesticides UG/KG	UG/KG	175	0222	•	00.000	_	154,000.00	93,100.00	51,800.00	33,300,00	30 300 00	280.00
CHLOROBENZILATE	Pesticides UG/KG	UGAKG	17		0	901.00	1,260.00	9,350.00	5,490.00	2,520.00	157000	00.00	2,200.00
P-CYMENE	Organica	0 0 0	<u> </u>	27/	_	29.50	30.80	211.00	149.00	5	90.00.	07970	209.00
BENZO(B)FLUORANTHENE		5 X S	178	7750	7	10,900.00	14.600.00	154 000 00	86 100 00	8.80	2.98 2.98	54.20	20.00
BETA-BHC	Organics	UG/KG	178	7750	80	9.830.00	13 500 00	154,000,00	00,001,00	43,200.00	33,600.00	30,600.00	5,260.00
	Pesticides UG/KG	UG/KG	175	7720	• •	44.30	00.000,01	00.000,961	46,700.00	43,000.00	33,000.00	29,000.00	4.780.00
	Pesticides UG/KG	UG/KG	175	7720	· «	3 ;	08.01	163.00	83.20	71.20	41.50	22.20	10.00
	Organics (UG/KG	176	7750) q	14.70	08.90	123.00	88.20	84.80	41.50	22.30	10 20
P. C.	Organics	UG/KG	178	7750	o w	00.000.01	46,300.00	329,000.00	327,000.00	257,000.00	42,800.00	29,300.00	4.780.00
	Organics	UG/KG	176	7750		00.000,8	13,400.00	154,000.00	46,700.00	43,000.00	32,900.00	27.700.00	4 700 00
TYREN	Organics (UG/KG	178	7750	ם כ	90-040'A	13,600.00	154,000.00	46,700.00	43,000.00	33,300.00	28.800.00	4 760 00
I RICHLOROFLUOROMETHANE	Organics L	UG/KG	176	27.50	n u	00.058,8	13,400.00	154,000.00	46,700.00	43,000.00	33,000.00	28.000.00	4 760 00
					0	00.000	2,940.00	31,800.00	7,210.00	5,110.00	3,470,00	2 000 00	367.00
													3

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY

Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimur

		50th	Percentile		1.790.00	4.760.00	4.780.00	23,800.00	4.780.00	4.850.00	00.04	370.00	18.70	380.00	357.00	10.00	4,780,00	51.70	357.00	20.00	357.00	4,780.00	357.00	8
		90th	Percentile		10,400.00	28,000.00	28,000.00	151,000.00	28,000.00	30,200.00	20.80	2,060.00	38.10	2,080.00	2,080.00	20.80	27,700.00	105.00	2,060.00	40.90	2,060.00	30,400.00	2,080.00	107.00
		95th	_1		15,600.00	33,000.00	32,900.00	167,000.00	33,100.00	33,300.00	33.30	3,130.00	45.70	3,050.00	3,130.00	25.20	32,900.00	157.00	3,130.00	66.50	3,130.00	37,300.00	3,130.00	155.00
Level	100	9617	Percentile Percentile		23,500.00	43,000.00	43,000.00	42,000.00	43,000,00	00.00	53.60	5,120.00	107.00	5,170.00	5,110.00	33.80	23,000.00	330.00	3,110.00	123.00	9,110.00	6,800.00	300.00	769.00
acted to the Minimum Level	99th	Percentile		36.100.00	46.700.00	46 700 00	314.000.00	46.700.00	72.300.00	74.20	7 200 00	140.00	7.430.00	7.210.00	24.30	46.700.00	428.00	7.210.00	164.00	7210.00	67.300.00	7,210.00	371.00	
01 Jac (1731-16	Observed	J		159,000.00	154,000.00	154,000.00	835,000.00	154,000.00	331,000.00	105.00	31,800,00	211.00	31,800.00	31,800.00	105.00	154,000.00	529.00	31,800.00	211.00	31,800.00	310,000.00	31,800.00	526.00	
	Standard	Deviation							00 17,800.00	40 13.70	2,930.00	30 26.70	0 2,920.00	0 2,920.00	13.40	0 13,400.00	73.60	~				2,930.00	66.80	
	Percent	Mean		9 4,850	9,760.00	9,790.00	53,100.00	9,750.00	11,200.00	13.40	995.00	4 25.50	985.00	969.00	3 13.00	9,740.00	5 65.30	967.00	28.50	971.00	3 12,100.00	994.00	65.90	
	POTWS	1	7750	7750	7750	7750	7750	7750	7720	7750	06.22	7750	7750	27.	27.7	7750	7750	7720	7750	7750	7750	7720		
	Sample of Size		G 176	G 176	G 176	3 176	3 176	176	175						178	178	178	175	178	178	178			
	Type Unit		Organics UG/KG	Organics UG/KG	Organics UG/KG	Organics UG/KG	Organics UG/KG	Organics UG/KG	Pesticides UG/KG	Organica UG/KG	Pesticides UG/KG	Organics UG/KG	Organics UG/KG	Pesticides UG/KG	Organics UG/KG	Pesticides UG/KG	Organics UG/KG	Pesticides UG/KG	Organics UG/KG	nics UG/KG	nks UG/KG	Pesticides UG/KG		
			0	0	ō	δ	ð,	δ	ď	ð	ą.	ō	ő	a.	Õ	e.	đ O	Pest	B O	Organics	Organics	Pestk		
			<u>u</u>	ENE	!		щ					¥	ı											
	tant	2-HEXANONE	BENZO(A)ANTHRACENE	BENZO(K)FLUORANTHENE	BENZOIC ACID	ENE	DI-N-BUTYL PHTHALATE	N	ETHYLBENZENE	HEPTACHLOR EPOXIDE	¥	TETRACHLOROMETHANE		BENZO(A)PYRENE	YRIFOS	SOBUTAL ALCOHOL	N (TOR)	INE		TETRACHLOROETHENE	TRIFLURALIN (TREFLAN)			
	Pollutant	2-HEX	BENZC	BENZC	BENZC	CHRYSENE	DI-N-B(DIELDRIN	ETHMLE	HEPTAC	M-XYLENE	TETRAC	ALDRIN	BENZO(A	CHLORPYRIFOS	SOBUTY	NITROFEN (TOK)	O+P XYLENE	STYRENE	TETRACH	TRIFLURA			

50.00

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

İ													
Pollutant	1		Sample		Percent		Standard	Observed of					
	Type	E C	Size	POTWs	Detect	Mean	Deviation	Movie		98th	95th	90th	50th
AZINPHOS METHY							TO THE PARTY OF TH	MAXIMUM	Percentile	Percentile	Percentile	Percentile	Darcantille
CHIOROBEAZENIE	Pesticides UG/KG	UG/KG	176	7750	·	150 00					1		
DEITABLO	Organics	UG/KG	176	7750	, ,	00.00		1,210.00	893.00	643.00	311.00	269.00	420
DIAZINON	Pesticides UG/KG	UG/KG	175	7720	• ^	32.00	7	31,800.00	7,290.00	5,120.00	3,130.00	2.080.00	36.00
DIBENZOFIRAN	Pesticides UG/KG	UG/KG	176	7750	۰ ۲	8.35		263.00	186.00	135.00	62.30	51.70	8.55
NALED (DIBROM)	Organics	UG/KG	176	7750	' "	9.930.00	00.00	483.00	357.00	257.00	150.00	107.00	5.190
PHENANTHRENE	Pesticides UG/KG	UG/KG	176	7750	7	424.00	448.00	154,000.00	59,800.00	43,200.00	33,300.00	28,800.00	4.760.00
PHOSPHORIC ACID TRI O TO SEE SEE	Organics	UG/KG	176	7750		9 9 30 00	13 500 00	3,290.00	2,430.00	1,750.00	840.00	707.00	340.00
SANTOX (FPN)	Pesticides UG/KG	UG/KG	176	7750	٠	742.00	2,500.00	154,000.00	46,700.00	43,000.00	33,300.00	28.800.00	780.00
TETRAETHYI DVBCOUSES	Pesticides UG/KG	UG/KG	176	7750	٠ ،	3 2	00.878	7,080.00	5,160.00	3,640.00	1,530.00	1.310.00	4,780.50 60.00 60.00
1.2.3 4 DIEDOVYBITANIE	Pesticides UG/KG	UG/KG	178	7750	٠ ،	1 27 00	0.30	545.00	359.00	258.00	124.00	00,00	8 2
1.4-Dight obgenien	Organics	UG/KG	178	7750	٠,	10,600,00	30.001,1	20,000.00	3,920.00	3,100.00	2,950.00	2.500.00	9 6 6
1.4-Dioxane	Organics	UG/KG	178	7750	, ,	0,000,00	42,400.00	308,000.00	93,300.00	96,000.00	98,000.00	98,000,00	9.520.00
4-METHY -2-BENTANDAR	Organics	UG/KG	178	7750		00.02.00	3,400.00	154,000.00	48,700.00	43,000.00	32,900.00	27.700.00	4 780 00
4.4.DOT	Organics	UG/KG	178	7750	' ^	96.50	. '	36,000.00	7,540.00	5,170.00	3,130.00	2,060,00	25.7 m
ACETOPHENOME	Pesticides	UG/KG	175	7720	۰ ،	26.00.00	_	,560,000.00	36,100.00	25,500.00	15,600.00	10.400.00	1 280 00
AI PHA BHC	Organica	UG/KG	178	7750	• •		08:97	211.00	155.00	125.00	48.40	2	19 70
AI PHA-TERDAMECA	Pesticides (UG/KG	175	7720	•		13,400.00	154,000.00	46,700.00	43,000.00	32,900.00	27.700.00	478000
ANTHRACEAE	Organics (UG/KG	178	7750	٠,		13.40	105.00	74.20	53.60	22.60	20 10	9.00
	Organics (UG/KG	178	7750	• •	9,740,00	13,400.00	154,000.00	46,700.00	43,000.00	32,900.00	27.700.00	4 760 00
	Organics L	UG/KG	178	7750	- ۱	8,740,00	8,770,00 847,000,00 45,885,000,00	154,000.00	48,700.00	43,000.00	32,900.00	27,700.00	4.760.00
						8	61 00.000,74	300,000,00	78,800.00	43,300.00	33,300.00	29,000.00	4,760.00

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

			Sample		Percent		Standard	Observed	99th	98th	95th	400	100
Pollutant	Type	Oult	Size	POTWs	Detect	Mean	Devlation	Maximum	Dercentile	Doecontile			110c
									· creeming	reiceillie	rercentile	Percentile	Percentile
CHLOROFORM	Organics	UG/KG	176	7750	-	00 980	00000	90					
DIN-OCTYL PHTHALATE	,			.	-	90.000	4,930.00	00,000,10	00.056,7	5,160.00	3,130.00	2,080.00	357.00
	Organics	OG/KG	176	7750	_	9,700.00	13,400.00	154,000.00	46,700.00	43,000.00	32,900,00	27 700 00	4 780 00
DIMETHOATE	Pesticides UG/KG	UG/KG	176	7750	-	62.40	96.30	483.00	412.00	259.00	126.00	404.00	4,700.00
DIMETHYL PHTHALATE	Organics	UG/KG	176	7750	-	9.800.00	13.500.00	154 000 00	48 700 00	43,000,00	00.021	104.00	01.00
ENDOSULFAN-	Pesticides	UG/KG	175	7720	-	63.30	67.00	526.00	324.00	369.00	33,100.00	28,800.00	4,760.00
N-NITROSODIPHENYLAMINE	Organics	UG/KG	176	7750	-	19,400.00	26.900.00	308 000 00	93 300 00	00.502	00.611		49.20
NAPHTHALENE	Organics	UG/KG	176	7750	-	9.690.00	13.500.00	154 000 00	46 700 00	25,000.00	00.000,00	00.006,66	9,520.00
TRANS-1,2-DICHLOROETHENE	Organics	UG/KG	176	7750	_	975.00	2 830 00	31 800 00	7,530,00	45,000.00	32,800.00	28,000.00	4,780.00
TRICHLOROETHENE	Organics	UG/KG	176	7750	-	979 00	2 920 00	31 800 00	7,330.00	9,160.00	2,940.00	2,080.00	357.00
2-CHLORONAPHTHALENE	Organics	UG/KG	176	7750	-	9 720 00	13 400 00	154 000 00	7,210.00	00.011,6	3,130.00	2,080.00	357.00
2-METHYLNAPHTHALENE	Organics	UGAKG	178	7750	•			7,000.00	DO:00/04	43,000.00	32,900.00	27,700.00	4,760.00
2-PICOLINE	Consulte	2	2 5	3		30.00		154,000,00	66,100.00	43,200.00	33,300.00	28,800.00	4,760.00
14,006			2	8	-	48,900.00	67,400.00	769,000.00	238,000.00	215,000.00	165,000.00	139,000.00	23,800.00
	Pesticides		175	7720	-	63.80	67.10	526.00	371.00	269.00	124.00	90	769.30
AVALINE, 2,4,5-TRIMETHYL-	Organics	UGAKG	178	7750	•	19,400.00	27,000.00	308,000.00	100,000.00	86,100,00	06,000,00	56 000 00	9 520 00
ARAMITE	Organics	UG/KG	178	7750	0	48,400.00	67,200.00	769,000.00	233,000,00	215,000,00	164 000 00	130,000,00	23 800 00
AZINPHOS ETHYL	Pesticides	UGAKG	178	7750	0	155.00	165.00	1 210 00	893.00	643.00	90000	00.000,000	25,000.00
BENZANTHRONE	Organics	UGAKG	176	7750	C	48 400 00	67 200 00	789,000,00	233 000 00	975	308.00	760.00	M.C.
BENZENE	Organics	LKGKG	178	7760	•	90.000	00.000.00	000000	233,000.00	00.000,612	164,000.00	139,000.00	23,800.00
BENZENETHO		15.80	? ;	3	•	3.00	2,920.00	31,800.00	7,210.00	5,110.00	3,130.00	2,060.00	357.00
		3	2	8	0	9,680.00	13,400.00	154,000.00	46,700.00	43,000.00	32,900.00	27,700.00	4,760.00
DENZIONE	Organics	COKC	178	7750	0	48,400.00	67,200.00	769,000.00	233,000.00	215,000,00	164 000 00	130,000,001	23 800 00
													7.55.54

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

			Came										
Pollutant	į		Sample		Percent		Standard	Observed	4166	4000			
A STATE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN C	lype	Cart	Size	POTWS	Detect	Mean	Deviation			1100	E)CA	90th	50th
1								ŧ	Percentile	Percentile	Percentile	Percentile	Percentile
BENZO(GHI)PERYLENE	Organice	ווכיאנט	,										
BENZONITRILE, 3.5-DIBROMO, 4 HYDROXY		200	9/-	//20	0	19,400.00	0 26,900.00	308,000,00	93 300 00	00 000 88			
BENZVI ALCOLOR	Organics	UG/KG	176	7750	0	48,400,00	0 67 200 00	759 000 007	00.000,00	00,000,00	65,800.00	55,500.00	9,520.00
BENZIL ALCOHOL	Organics	UG/KG	176	7750	c	0 720 00		00.000,697	233,000,00	215,000.00	164,000.00	139,000.00	23,800.00
BE I A-NAPHTHYLAMINE	Organics	UG/KG	178	7750	• •	9,727,0		156,000.00	47,600.00	43,000.00	32,900.00	27,800.00	4.780.00
BIPHENYL, 4-NITRO	Organics	UG/KG	176	7750	•	46,400.00		769,000.00	233,000.00	215,000.00	164,000.00	139,000.00	23.800.00
BIS(2-CHLOROETHOXY)METHANE	Organics	UG/KG	176	7750	>	9,680.00		154,000.00	46,700.00	43,000.00	32,900.00	27,700.00	4.780.00
BIS(2-CHLOROETHYL) ETHER	Organics	UG/KG	176	7750	- 0	9,680.00		154,000.00	46,700.00	43,000.00	32,900.00	27,700.00	4.780.00
BIS(2-CHLOROISOPROPYL) ETHER	Organics	UGAKG	176	7750	-	9,560.00		154,000.00	46,700.00	43,000.00	32,900.00	27,700.00	4.780.00
BROMODICHLOROMETHANE	Organics	UGIKG	176	7750	> 0	9,680.00	_	154,000.00	46,700.00	43,000.00	32,900.00	27,700,00	4.780.00
BROMOMETHANE	Organics	UGKG	178	3 5	-	968.00		31,800.00	7,210.00	5,110.00	3,130.00	2.080.00	357.00
CAPTAFOL		1 KG/KG		200	-	4,830.00	14,600.00	159,000.00	38,100.00	25,500.00	15,600,00	10.400.00	4 700.00
CAPTAN			2 ;	1/20	0	632.00	670.00	5,260.00	3,710.00	2,680.00	1.140.00	9	00.007.
CARBAZOLE	Ornanica	5 CANCEL	2 !	7720	0	127.00	134.00	1,050.00	747.00	541.00	228.00	3 5	00.284
CARBOPHENOTHION (TRITHON)		Service Lighton	9/ F	7750	0	19,400.00	26,900.00	308,000.00	93,300.00	96,000.00	65.800.00		00.00
CHLORDANE	Pesticides UG/KG	Nowe of	 	02/	0	632.00	670.00	5,280.00	3,710.00	2,680.00	1,140.00	951.00	40.00
CHLOROACETONITRILE	Organics	UGAG	5 t	27.5	0	317.00		2,630.00	1,860.00	1,340.00	288.00	20400	240
CHLOROETHANE		UGAKG	5 5	001	0	986		31,800.00	7,210.00	5,110.00	3,130.00	2.000.00	357.00
CHLOROFENVINPHOS		UG/KG	2 5	00/	0	4,830.00	14,600.00	159,000.00	38,100.00	25,500.00	15,600,00	10.400.00	20000
CHLOROMETHANE	Organics	UGAKG	97.	001	0	62.10	65.80	483.00	357.00	257.00	124.00	5	5
CIODRIN	_	JG/KG	77	06/1	0 (4,830.00	7	159,000.00	36,100.00	25,500.00	15,600.00	10.400.00	1.790.00
				2	0	126.00	133.00	970.00	723.00	517.00	249.00	206.00	102.00

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

;			Sample		Percent		Chanderd						
Pollutant	Type	41-11					Standard	Opserved	3 9th	98th	95th	904	100
	ype		Size	POTWS	Detect	Mean	Devlation	Maximum	Percentile	Darrentille			U)OC
										rercentile	Percentile	Percentile	Percentile
CIS-1,3-DICHLOROPROPENE													
	Organics	OG/KG	176	7750	0	966.00	2.920.00	31 800 00	121000				
COCMAPHOS	Pesticides UG/KG	UG/KG	176	7750	•	104.00	i	0.000,10	00.012,1	5,110.00	3,130.00	2,080.00	357.00
CROTONALDEHYDE				3	>	124.00	132.00	970.00	716.00	514.00	247 00	6000	
Condition	Organics	OG/KG	176	7750	0	4,830.00	14,600,00	159 000 00	36 400 00		3	200.00	100.00
CACIOATPHOS	Organics	UG/KG	176	7750	•	06 000 00	10000	00.000,001	30,100,00	25,500.00	15,600.00	10,400.00	1,790.00
DEMETON	Deetholdee 110 000	2		3	•	00'000'ce	95,000,00 133,000,00	1,520,000.00	462,000.00	426,000.00	326,000,00	275 000 00	47 400 00
		2	176	7750	0	124.00	132.00	970.00	718.00			2000	47,100.00
CHATACHICINERCOMINE	Organics	UG/KG	176	7750	c	10 400 00	000000		8.2	514.00	247.00	208.00	100.00
DIALLATE	Pesticides	וטאט	175		•	9,400.00	20,900,00	308,000.00	93,300.00	86,000.00	65,800.00	55,500,00	9 520 00
DIBENZO/A HIANTHRACENE			2	2//	0	128.00	135.00	1,050.00	743.00	537.00	264.00	000	000000
	Organics	OG/KG	176	7750	0	19,400,00	26 900 00	308 000 00		80.100	W.163	199.00	98.40
DIBENZOTHIOPHENE	Organics	UG/KG	178	7750	•		000000	000000000000000000000000000000000000000	83,300.00	96,000.00	65,800.00	55,500.00	9.520.00
DIBROMOCHLOROMETHANE	Ordenice	2	: :	3	>	00.080'A	13,400.00	154,000.00	46,700.00	43,000.00	32,900,00	27 700 00	4 780 00
DIRROMOMETUANE		2	9	7750	0	966.00	2,920.00	31,800.00	7,210.00	A 140 00	9 440 00	2001	1,100.00
	Organics	UG/K G	178	7750	0	00 996	2 020 00	31 800 00		8.2	3,130.00	2,080.00	357.00
DICHLORVOS	Pesticides	UG/KG	178	7750	•		4,940.00	31,000,00	7,210.00	5,110.00	3,130.00	2,080.00	357.00
DICROTOPHOS (BIDRIN)	Pasticidae			3	>	62.10	62.80	483.00	357.00	257.00	124.00	104.00	5
DIETHM. ETHER			9	8	0	358.00	380.00	2,790.00	2,080.00	1.460.00	712.00	60	
DISTUM BUTTON ATE		28/20	178	7720	0	4,880.00	14,600.00	159,000,00	36.100.00	25 600 00		0.00	708.00
	Organics	COKC	178	7750	0	9 680 00	13.400.00	161,000,00		20,000,00	00.000,61	10,400.00	1,790.00
DIMETHYL SULFONE	Organics	UGAKG	178	7750	•	2000	0.00	134,000,00	46,700.00	43,000.00	32,900.00	27,700.00	4,780.00
DIOXATHION	_	O.V.O.	,	3	>	9,680.00	13,400.00	154,000.00	46,700.00	43,000.00	32,900.00	27,700,00	4 780 00
DIPHENYI ETHER			2	82	0	497.00	528.00	3,870.00	2,880,00	2 000 00			
	Organics	S S S	178	7750	0	9.680.00	13.400.00	154 000 00	46 700 00	2000	900.00	631.00	400.00
CHARLYLANG	Organics	UGAKG	178	7750	•	0	19 600 00	00.000	46,700.00	43,000.00	32,900.00	27,700.00	4,760.00
DIPHENYLDISULFIDE	Organics	UGAKG	474	1160	•	9,000,0	13,500.00	154,000.00	48,700.00	43,000.00	33,200.00	28,800.00	4.780.00
			2	8	0	19,400.00	28,900.00	308,000.00	93,300.00	98,000.00	65,800,00	55 500 00	0 630 00
												8.00	9,036,0

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

Dollintant			Sample		Percent		Standard	Ohserved	1100				
	Type	Unit	Size	POTWs	Detect	Mean	Davistion		III E	9815	95th	90th	50th
							Scylation	MAXIMIM	Percentile	Percentile	Percentile	Percentile	Percentile
DISULFOTON	Pesticides UG/KG	UG/KG	176	7760	•								
ENDOSULFAN SULFATE			2	8	0	62.10	65.80	483.00	357.00	257.00	424.00		
	Pesucides UG/KG	OG/KG	175	7720	0	63.30	67.00	526.00	274.00	0	24.00	104.00	20.00
	Pesticides UG/KG	UG/KG	175	7720	•	31 80		050.00	37.00	269.00	114.00	95.20	49.20
ENDRIN KETONE	Pesticides UG/KG	UG/KG	175	77.30	•	9.10		263.00	186.00	135.00	57.10	47.70	24.80
ETHANE, PENTACHLORO.	Ordanica	0,000	? ;	211	0	63.30	67.00	526.00	371.00	269.00	114.0	06.30	
ETHION	Constitution	9 (A)	176	7750	0	19,400.00	26,900.00	308,000,00	93 300 00	00000	0.11	03.68	49.20
	Pesticides UG/KG	UG/KG	176	7750	0	62.10	65.80	763 00	00'000'00	96,000.00	65,800.00	55,500.00	9,520.00
EINTLCTANDE	Organics	UG/KG	176	7750	•	, ,	•	403.00	357.00	257.00	124.00	104.00	20.00
ETHYL METHACRYLATE	Organics	UG/KG	178	1750	•	800		64,700.00	7,530.00	5,160.00	3,130.00	2.080.00	357.00
ETHYL METHANESULFONATE			2	8	0	966.00	2,920.00	31,800.00	7,210.00	5,110,00	3 130 00	00 080 6	
ETHY FACTHER IDEA		OG/NG	176	7750	0	19,400.00	26,900.00	308,000,00	93 300 00	000000	00.001.0	4,000.00	35/.00
	Organics (UG/K G	176	7750	•	19 400 00			00.000.00	00'000'00	65,800.00	55,500.00	9,520.00
FAMPHUR	Pesticides UG/KG	JG/KG	178	7760	•	30.00	207	308,000.00	93,300.00	86,000.00	65,800.00	55,500.00	9.520.00
FENSULFOTHION	Pesticides LIGING	NO NO	2 6	8 1	•	62.10	65.80	483.00	357.00	257.00	124.00	104.00	80.00
FENTHON	Particidae 11070		0 !	8	0	154.00	163.00	1,200.00	887.00	636.00	306.00	26.8.00	97.00
FLUORENE		20/50	1/6	7750	0	62.10	65.80	483.00	357.00	287.00		4.30.00	124.00
	Organics	NG/KG	178	7750	0	9.680.00	13 400 00	454 000 00	70 202 07	8.75	124.00	104.00	20.00
	Pesticides UG/KG	KG/KG	175	7720	• •	26.30	20.00	00:000,451	46,700.00	43,000.00	32,900.00	27,700.00	4,760.00
	Organics U	UG/KG	178	7750	•	65.30	79.80	211.00	149.00	107.00	45.70	38.10	19.70
HEXACHLOROBUTADIENE		UGAKG	2 2	3 1	>	8,680.00	13,400.00	154,000.00	46,700.00	43,000.00	32,900.00	27.700.00	4.760.00
HEXACHLOROCYCLOPENTADIENE		240	2 ;	2	•	9,680.00	13,400.00	154,000.00	46,700.00	43,000.00	32 900 00	27 700 00	4780 00
		2	1/8	1750	0	9,680.00	13,400.00	154,000.00	46.700.00	43,000,00	33 000 00	00000	4,760.00
	Organics U	COKO	178	7750	0	9,680.00	13,400,00	154 000 00	46 700 00	000000	32,800.00	27,700.00	4,760.00
- EXACTED AND FINE	Organics U	UG/KG	176	7750	0	19 400 00	200000	2000,000	90.00.19t	43,000.00	32,900.00	27,700.00	4,760.00
						Signature 1	40,900.00	300,000,00	93,300.00	96,000.00	65,800.00	55,500.00	9,520.00

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

			1										
4 - 1 - 4 - 1 - 6			odmpie		Percent		Standard	Observed	99th	98th	95th	40th	KOth
Poliutant	Type	i C	Size	POTWs	Detect	Mean	Deviation	Maximum	-114				Tine.
			1				Townson The Control	MAAHIIMI	rercentile	Percentile	Percentile	Percentile	Percentile
INDENO(1,2,3-CD)PYRENE	Cranica	<u> </u>	Ş		(
THE PROPERTY OF THE PROPERTY O		2	9/1	00//	0	19,400.00	26,900.00	308,000.00	93,300.00	86,000.00	65,800.00	55,500,00	952000
ODOMIC TRANE	Organics	UG/KG	176	7750	0	966.00	2,920.00	31,800.00	7,210.00	5,110.00	3 130 00	000000	367.00
ISODRIN	Pesticides UG/KG	UG/KG	175	7720	0	63.30	67.00	526.00	37100	00 036	44408	4,000.00	00.700
ISOPHORONE	Organics	UG/KG	178	7750	•	00.089.0	43 400 64	464 000 00	8.1.5	703.00	114.00	95.20	49.20
ISOSAFROLE	, contra	2			•	2000,6	3,400.00	154,000.00	46,700.00	43,000.00	32,900.00	27,700.00	4,780.00
SCHOOLOGI		9 9 9 9	2	8	0	9,680.00	13,400.00	154,000.00	46,700.00	43,000.00	32,900.00	27.700.00	4 780 00
LEFTOTHOS	Pesticides	CO/KG	176	7750	0	75.20	79.60	583.00	432.00	315.00	149.00	125.00	9 9
LINDANE (GAMMA-BHC)	Pesticides UG/KG	UG/KG	175	7720	0	31.90	33.50	263.00	186.00	135.00	£7 ±0	20.02	
LONGIFOLENE	Organics	UG/KG	176	7750	0	48 400 00	67 200 00	769 000 00	233 000 000	946 900 94	91.76	DR: TO	24.90
MALACHITE GREEN	Organics	LIG/KG	178	7750	•	00000	00.001	00.000,00	23,000.00	00.000,612	164,000.00	139,000.00	23,800.00
MAIATHON			2 !	3	>	9,680.00	13,400.00	154,000.00	46,700.00	43,000.00	32,900.00	27,700.00	4,760.00
	Pesticides	CGKG	178	7750	0	62.10	65.80	483.00	357.00	257.00	124.00	104.00	5
MESIKANOL	Organics	NG/KG	178	7750	0	19,400.00	26,900.00	308,000,00	83,300,00	88 000 00	AK BOO DO	2000	8 6
METHAPYRILENE	Organics	UG/KG	176	7750	0	9 680 00	13.400.00	154 000 00	46 700 00	49 000 00	00,000,00	00.000	00.026,9
METHOXYCHLOR	Peeticides		176	13.0	• (00000	24,000.00	40,700.00	43,000.00	32,900.00	27,700.00	4,780.00
METHY METHACON ATE			2	8	5	62.30	67.00	528.00	371.00	266.00	114.00	95.20	49.20
		S S S S S S S S S S S S S S S S S S S	178	7750	0	986.00	2,920.00	31,800.00	7,210.00	5,110.00	3,130.00	2.080.00	357.00
ME IN I ME I TWATE SULFONA!	Organics	CGKG	178	7750	0	19,400.00	26,900.00	306,000.00	93,300.00	98,000,00	65 800 00	65.500.00	0 000
METHYL PARATHON	Pesticides	UG/KG	178	7750	0	62.10	65.80	463.00	357.00	257.00	224.00	90,00	00.020.0
MEVINPHOS (PHOSDRIN)	Pesticides UG/KG	UG/KG	176	7750	0	62.10	65.80	483 00	357.00	367.00		8 5	80.00
MIREX	Pesticides UG/KG	UG/KG	175	7720	c	8	67.00	236.00		20.703	W.621		8
MONOCROTOPHOS	Dankolden 15.00	200			•	3	8	00.020	37.0	288.00	14.00	88.20	49 .20
THE PARTY OF THE PARTY IN		9	2	8	0	1,860.00	1,960.00	14,500.00	10,700.00	7,710.00	3,700.00	3,120.00	1,500.00
THE INCOCU-14-BOILD WINE	Organics	CGKG	138	7750	0	9,680.00	13,400.00	154,000.00	46,700.00	43,000,00	32 900 00	27 700 00	4 780 00
											00.000.00	20.00.00	3.00.00

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level Candidate Pollutants for Round Two Regulations

Percentile 27,700.00 39,000.00 27,700.00 25,000.00 Percentile Percentile 27,700.00 27,700.00 27,700.00 27,700.00 27,700.00 27,700.00 27,700.00 55,500.00 139,000,00 208.00 55,500.00 139,000.00 90th 32,900.00 164,000.00 32,900.00 326,000.00 32,900.00 32,900.00 32,900.00 32,900.00 32,900.00 32,900.00 32,900.00 65,800.00 64,000.00 247.00 65,800.00 64,000.00 95th 43,000.00 215,000.00 43,000.00 126,000,00 Percentile 43,000.00 43,000,00 43,000.00 (3,000.00 43,000,00 43,000.00 43,000.00 66,000.00 15,000.00 514.00 98,000.00 215,000.00 **98th** 46,700.00 233,000.00 46,700.00 462,000.00 46,700.00 Percentile 46,700.00 48,700.00 46,700.00 48,700.00 46,700.00 48,700.00 93,300,00 233,000.00 716.00 93,300.00 233,000.00 **99th** 154,000.00 769,000.00 154,000.00 Observed Deviation Maximum 1,520,000,00 154,000.00 154,000.00 54,000.00 54,000.00 54,000.00 54,000.00 154,000.00 308,000.00 769,000.00 970.00 308,000,00 69,000.00 Standard 9,680.00 13,400.00 48,400.00 67,200.00 9,680.00 13,400.00 95,800.00 133,000.00 9,680.00 13,400.00 13,400.00 13,400.00 13,400.00 13,400.00 9,680.00 13,400.00 13,400.00 19,400.00 26,900.00 48,400.00 67,200.00 132.00 48,400.00 67,200.00 26,900.00 9,680.00 13,400.00 9,680.00 9,680.00 9,680.00 9,680,00 9,680.00 124.00 Mean 19,400.00 Percent Detect Size POTWs 7750 7750 7750 7750 7750 7750 7750 7750 7750 7750 7750 7750 750 7750 7750 750 Sample S UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG UG/KG **JG/KG** UG/KG **Vek**G **UG/KG UG/KG UG/KG** UG/KG **UG/KG** Туре Organics Organics Organics Organics Organics Organics Organics Organics Organics Pesticides Organics Organics Organics Organics Organics Organics Organics N-NITROSOMETHYLPHENYLAMINE N-NITROSOMETHYLETHYLAMINE P-DIMETHYLAMINOAZOBENZENE N-NITROSODIMETHYLAMINE N-NITROSODIE THYLAMINE N,N-DIMETHYLFORMAMIDE N-NITROSOMORPHOLINE O-TOLUIDINE, S-CHLORO. **PENTACHLOROBENZENE** N-NITROSOPIPERIDINE PENTAMETHYLBENZENE PENTACHLOROPHENOL NITROBENZENE P-NITROANILINE O-TOLUIDINE O-ANISIDINE **Pollutant** PARATHION PERYLENE

4,760.00

50th

23,800.00 4,760.00

17,100.00 4,760.00 4,780.00

4,760.00

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4,780.00

4,780.00 4,780.00 9,520.00 23,800.00 100.00 9,520.00

4,760.00 23,800,00

27,700.00

32,900.00 33,000.00 32,900.00 5,800.00

43,000.00 43,000.00 13,000,00 96,000,00

46,700.00 50,400.00 46,700.00 93,300.00

54,000.00

13,500.00 13,400.00 26,900,00

9,720.00 9,680.00 19,400.00

7750 7750 7750

UG/KG **UG/KG UG/KG**

Organics Organics Organics

PHENOL, 2-METHYL-4,8-DINITRO.

PHENACETIN

178

154,000.00 54,000.00

308,000.00

4,760.00 1,760.00 9,520.00

> 27,700.00 55,500.00

28,000.00

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

Pollutant			sample		Percent		Standard	Observed	9914	001			
	Type	Unit	Size	POTWs	Detect	Mean	Devlation	Maximum	1100	201U	95th	90th	50th
							Deviation	MAXIMUM	Percentile	Percentile	Percentile	Percentile	Percentile
PHENOTHIAZINE	,												
	Organics UG/KG	UG/KG	176	7750	0	48.400.00	67 200 00	20,000,007					
THORAIE	Pesticides UG/KG	UG/KG	176	7750	•			00.000,607	233,000.00	215,000.00	164,000.00	139,000.00	23 800 00
PHOSMET)	3	•	62.10	65.80	483.00	357.00	257.00	124.00		
	Pesticides UG/KG	OG/KG	176	7750	0	124.00	132.00	00.070			124.00	104:00	20.00
NOSHIAMIDON	Pesticides UG/KG	UG/KG	176	7750	•	273.00	•	9.00	716.00	514.00	247.00	208.00	100.00
PHOSPHORIC ACID, TRIMETHYL ESTER	Dacticidae 1000	2		3	>	3/3.00	396.00	2,900.00	2,150.00	1,540.00	74100	623.00	0000
PHOSPHOPO TOURNAL POPULATION OF THE PROPERTY O		2	9/1	120	0	87.10	92.40	678.00	50105	00000		D.C.30	30.00
THE STATE OF THE MANIET HELD.	Pesticides UG/KG	UG/KG	176	7750	•	311.0	•		8	360.00	173.00	145.00	70.00
PRONAMIDE	Organics	UG/KG	178	3350	•	8		2,420.00	1,790.00	1,290.00	617.00	520.00	250.00
PYRIDINE			2	3	0	9,680.00	13,400.00	154,000.00	46,700.00	43,000,00	32 000 00	10000	
	Organics	OG/KG	176	7750	0	9.680.00	13.400.00	154 000 00	40 400 00	00000	32,900.00	7,700.00	4,780.00
RESORCINOL	Organics	UGKG	178	7750	•			134,000,00	46,700.00	43,000.00	32,900.00	27,700.00	4,780,00
SAFROLE		2	? ;	3	•	48,400.00	67,200.00	769,000.00	233,000.00	215,000.00	164,000,00	110,000,001	23 800 00
SOLIALENE		2	9/1	1720	0	9,680.00	13,400.00	154,000,00	48 700 00	43,000,00		00.000,00	23,900.00
	Organics	OG/KG	176	7750	0	95 800 00	P5 800 00 133 000 00	4 570 000 00	00.00.00	2,000,00	32,900.00	27,700.00	4,780.00
TERBUFOS	Pesticides UG/KG	UG/KG	178	7750	, ,	90,000,00	22,000.00	00'000'026'1	462,000.00	428,000.00	326,000.00	275,000.00	47.100.00
TETRACHLORWINPHOS	Pacticidae 110ACC	O.V.OI		3	>	62.10	65.80	483.00	357.00	257.00	124.00	54.0	5
TETRAETHYI DITHIOPYBOBLOSSULLT			2	8	0	62.10	65.80	483.00	357.00	257.00	434.00		8
	Pesticides UG/KG	CGKG	178	750	0	62 10	AS BO	703 007		8	3.5	104.00	20.00
IMMAPHTHENE	Organics	UG/KG	178	7750	•		3	163.00	357.00	257.00	124.00	104.00	20.00
THOACETAMIDE	Organics	UG/KG	178	7750	•	9,000,00	13,400.00	154,000.00	48,700.00	43,000.00	32,900.00	27,700.00	4.780.00
THIOXANTHE-9-ONE		3	2 !	3	•	19,400.00	26,900.00	308,000.00	93,300.00	98,000,00	65 800 00	65 600 00	00000
TO LIENE 9 4 PARAMAS		2	1/6	7720	0	19,400.00	26,900.00	308,000,00	93 300 00	00000		2000	00.026,8
COCINE, C,4-DAMINO	Organics	DG/KG	176	7750	0	95 800 00	95 800 00 133 000 00	4 520 000 00		99,000,00	65,800.00	25,500.00	9,520.00
TOXAPHENE	Pesticides (UG/KG	175	0227	•		00.000.00	00.000,036,1	462,000.00	428,000.00	326,000.00	275,000.00	47,100.00
TRANS-1,3-DICHLOROPROPENE	Organics	UGKG	178	7750	•	7,200,00	00.000	10,500.00	7,430.00	5,370.00	2,270.00	1,900.00	964.00
	1			3	>	20.99	2,920.00	31,800.00	7,210.00	5,110.00	3,130.00	2.090.00	357.00

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

			Sample		0								
Pollutant	, i				Header		Standard	Observed	99th	98th	4190	1100	
	ıype	5	Size	POTWs	Detect	Mean	Devlation	Maximum	7		Hica	#Oth	Soth
								MAKHINGIL	Percentile	Percentile	Percentile	Percentile	Percentile
TRANS-1.4-DICHLORO.2.BLITENE												***************************************	
	Organics	UG/KG	176	7750	c	4 880 00							
IKIBROMOMETHANE	Organice	()	į		•	0.000't	14,000.00	159,000.00	36,100.00	25,500.00	15 600 00	40.400	10000
TRICHIOBOEON	2011	94/90	9/1	1750	0	966.00	2,920.00	31,800,00	7 240 00		000	9.99	00.067,1
	Pesticides UG/KG	UG/KG	176	7750	•	00,00		00:0001	00.012,	5,110.00	3,130.00	2,080.00	357.00
TRIPHENYLENE	Organice	240			•	00.100	00.100	5,130.00	3,790.00	2,730.00	1.320 00	1	90 303
TRIPROPYI ENERS YOU METUNI THILLING			2	7.50	0	9,680.00	9,680.00 13,400.00	154,000,00	46 700 00	42,000,00		3	00.656
AME TO THE THE METAL BUILDING	Organics	UG/KG	176	7750		95 800 00	95 800 00 133 000 00		20,000	43,000.00	32,900.00	27,700.00	4,760.00
VINYL ACETATE	Organics	UG/KG	176	7750		00'000'00	22,000.00	00.000,026,1	462,000.00	426,000.00	326,000.00	275,000.00	47,100,00
VINYL CHLORIDE		02/01	? ;	3	>	4,830.00	14,600.00	159,000.00	36,100.00	25,500.00	15 600 00	40,400	
1-BROWO 2 CLI COCCUIT		5/50	178	7750	0	966.00	2.920.00	31 800 00	734000		00.000	0,400,00	00.067,1
- COMOSTOLICONOBENZENE	Organics	UG/KG	176	7750	c	00000	10000	00.0001.0	00,012,1	9,110.00	3,130.00	2,080.00	357.00
1-BROMO-3-CHLOROBENZENE		ווכיונים			•	3,000.00	13,400.00	154,000.00	46,700.00	43,000.00	32,900,00	27 700 00	4 780 00
1-CHLORO-3-NITROBENZENE			9	280	0	9,680.00	13,400.00	154,000.00	46.700.00	43.00	200000	20.00.1	7,700.00
	Organics	OG/KG	176	7750	0	48 400 00	87 200 CD	20,000,000		3.000,51	32,900.00	27,700.00	4,780.00
1-ME I HYLFLUORENE	Organics	UGAKG	470	2360	,	DO:DOT '01	07.500.00	00:000'697	233,000.00	215,000.00	164,000.00	139,000,00	23 800 00
1-METHYLPHENANTHRENE			2	3	0	9,680.00	13,400.00	154,000.00	46,700.00	43 000 00	32 800 00	10000	000000
4 MADUTUM ALABIT	Sociation	S S S S S S	178	7750	0	9.730.00	13,500,00	154 000 00	46 700 00	0000000	34,800.00	00.00.72	4,760.00
	Organics	UGKG	178	7750	c	00000	40.400	00,000,00	46,700.00	43,000.00	33,300.00	28,800.00	4,760.00
1-PHENYLNAPHTHALENE	Organics	UCAKG	470	7760	•	00000	13,400.00	154,000.00	46,700.00	43,000.00	32,800.00	27.700.00	4 780 00
1,1-DICHLOROETHANE			2	8	0	9,680.00	13,400.00	154,000.00	46,700.00	43.000.00	22 000 02	11 700 00	
1 COUNTY OF THE PARTY OF THE PA	Cigarica	5 KS	176	720	0	966.00	2.920.00	31 800 00	7 240 00		20000	47,700.00	4,760.00
	Organics (UG/KG	178	7750	•	000	00000	00000110	7,410.00	00'011'6	3,130.00	2,060.00	357.00
1,1,1-TRICHLOROETHANE	Organics	UGKG	476		•	2000	2,820.00	31,800.00	7,210.00	5,110.00	3,130.00	2.000.00	357.00
1,1,1,2-TETRACHLOROFTHANE			2	8	0	1,030.00	3,210.00	31,800.00	16,000.00	5 200 00	130 00		30.100
	Organics	CGKG CGKG	178	7750	0	988	2 820 00	31 800 00	40100	0,000	3,130.00	2,080.00	357.00
	Organics	UG/KG	178	7750	•	000		00.000.00	7,410.00	5,110.00	3,130.00	2,080.00	357.00
1,1,2,2-TETRACHLOROETHANE	Organics	LIGAKO.	170		> 1	300	2,920.00	31,800.00	7,210.00	5,110.00	3,130.00	2.000.00	357.00
	1		2	3	0	986	2,920.00	31,800.00	7,210.00	5,110.00	3.130.00	2000	
												4,000,00	37.78

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

			Sample		Percent		Standard	Observed	4964	4180	4430		
Pollutant	Type	Unit	Size	POTWS	Datact	Moss			1		lince	#OTA	50th
					Delect	Medi	Deviation	Maximum	Percentile	Percentile	Percentile	Percentile	Percentile

1,2-DIBROMO-3-CHLOROPROPANE	Organics	UG/KG	176	7750	c	19 400 00	26 900 00	000000					
1,2-DIBROMOETHANE	Cranica	24/01	,		•	2000		200,000,000	93,300.00	86,000.00	65,800.00	55,500.00	9,520.00
	Sille	5450	2	200	0	966.00	2,920.00	31,800.00	7,210.00	5,110,00	3.130.00	2 080 00	367.00
E.E.CACAROBENZENE	Organics	UG/KG	176	7750	0	9,700.00	13.500.00	154,000,00	47 600 00	43 000 00	000000		00.100
1,2-DICHLOROETHANE	Organics	OG/KG	176	7750	•	00 990		00.000,00	11,000.00	43,000.00	32,900,00	27,800.00	4,760.00
1.2-DICHLOROPROPANE	o C	2				300.00		31,800.00	7,210.00	5,110.00	3,130.00	2,080.00	357.00
	Cigarics	94/90	9/1	7.50	0	966.00	2,920.00	31,800.00	7,210.00	5,110.00	3.130.00	2 080 00	367 M
1,4-DIPHENTLHTDRAZINE	Organics	UG/KG	176	7750	0	19,400.00	26,900.00	308,000,00	93.300.00	88,000,00	00 000 33	00.000,1	8.100
1,2,3-TRICHLOROBENZENE	Organics	UG/KG	176	7750	c	9 680 00		454 000 00	00.000,00	00,000,00	00.000,00	95,500.00	9,520.00
1,2,3-TRICHLOROPROPANE	Organics	וטענט	176	7750	•	00000	-	34,000.00	46,700.00	43,400.00	32,900.00	27,800.00	4,780.00
1.2.3-TRIMETHOXYBENZENE			2 !	3	>	20.99	2,920.00	31,800.00	7,210.00	5,110.00	3,130.00	2,080.00	357.00
	Spinedio	9 9 9	1/6	1120	0	9,680.00	13,400.00	154,000.00	46,700.00	43,000.00	32,900,00	27,700,00	4 780 00
1.4.4.1	Organics	UG/KG	176	7750	0	9,710.00	13,700.00	184,000,00	47 600 00	43,000,00	30 000 00		20.00
1,2,4,5-TETRACHLOROBENZENE	Organics	USKG	178	7750	c	0 680		454,000,00		00.000,51	34,800.00	27,900,00	4,760.00
1,3-BUTADIENE, 2-CHLORO	Organica	02/01			•	0,000,0	-	104,000,00	46,700.00	43,000.00	32,900.00	27,700.00	4,760.00
1 3 DICHI OBO 2 BBODANO			2	8	0	986 986	2,920.00	31,800.00	7,210.00	5,110.00	3,130.00	2,080.00	357.00
	Organics	S S S S	176	7750	0	9,680.00	13,400.00	154,000.00	46,700.00	43,000.00	32,900,00	27 700 00	4 780 00
1,3-DICHLOROBENZENE	Organics	COKG	178	7750	0	9.680.00	13,400,00	154 000 00	48 700 00	43,000,00	000000	2000	DO:001's
1,3-DICHLOROPROPANE	Organics	UG/KG	178	7750	•	0000	90000	00000	00.00.0	43,000.00	32,900.00	27,500.00	4,760.00
1,3,5-TRITHANE	Organica	02/011	9,	3	•	2000	7,870.00	31,800.00	7,210.00	5,110.00	3,130.00	2,060.00	357.00
1 4 DWITDOBENZENE			2	8	•	48,400.00	67,200.00	769,000.00	233,000.00	215,000.00	164,000.00	139,000.00	23,800.00
	Ciganics	OSKO	178	7250	0	19,400.00	26,900.00	308,000.00	93,300,00	88,000,00	AS ACO CO	EK 800 00	50 50 50
1,4-WAPHTHOQUINONE	Organics	UG/KG	178	7750	0	95.800.00	95,800,00 133,000,00	1 520 000 00	482 000 00	476 000 00		00.000	0,040.00
1,4-NAPHTHOQUINONE, 2,3-DICHLORO.	Pesticides	UGKG	175	7720		404	00.00	00'000'0"	105,000.00	420,000,00	326,000.00	275,000.00	47,100.00
1.5-NAPHTHALENEDVANANE	Capples		9,		•	3	3/0.00	7,630.00	2,030.00	1,430.00	964.00	624.00	200.00
		2000	9	30	0	95,800.00	95,800.00 133,000.00	1,520,000.00	462,000.00	426.000.00	326,000,00	275 000 00	47 100 00
													20:201.1

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

Pollutant	,		Sample		Percent		Standard	Observed	900	1100			
	Type	Chit	Size	POTWs	Detect	Mean	Devision		tilee	98th	95th	90th	50th
							Deviation	Maximum	Percentile	Percentile	Percentile	Percentile	Percentile
2-(METHYLTHIO)BENZOTHIAZOLE	Organics	0//01	,										
2-CHLOROETHYI VINY! FTHED			9/1	05//	0	9,710.00	13,500.00	154 000 00	50 400 00				
	Organics	UG/KG	176	7750	0	00 996		94,000,00	00.000	43,000.00	33,000.00	28,000.00	4,760.00
Z-CALCAOPHENOL	Organics	UG/KG	176	7750	•	00.000	•	31,800.00	7,210.00	5,110.00	3,130.00	2,080.00	357.00
Z-ISOPROPYLNAPHTHALENE	Organics	UG/KG	176	7750	•	2000,000		154,000.00	46,700.00	43,000.00	32,900.00	27,700.00	4 760 00
Z-METHYLBENZOTHIOAZOLE	Organics	UG/KG	176	7750	•	9,000.00		154,000.00	46,700.00	43,000.00	32,900.00	27,700.00	4.760.00
Z-NITROANILINE	Organics	UG/KG	176	7750	• •	00.000,6		154,000.00	46,700.00	43,000.00	32,900.00	27,700.00	4.760.00
Z-MI ROPHENOL	Organics	UG/KG	176	7750	•	9,000.00		154,000.00	46,700.00	43,000.00	32,900.00	27,700.00	4.760.00
Z-PHENYLNAPHTHALENE	Organics	UG/KG	176	7750	•	00.004,61		308,000.00	93,300.00	96,000.00	65,800.00	55,500.00	9.520.00
Z-PROPEN-1-OL	Organics	UG/KG	178	7750	•	00.000,0	_	154,000.00	46,700.00	43,000.00	32,900.00	27,700.00	4.780.00
Z-PROPENAL	Organics	UGAKG	176	7750	•	00.00a		31,800.00	7,210.00	5,110.00	3,130.00	2.080.00	357.00
2-PROPENENITRILE, 2-METHYL-	Organics	UG/KG	178	346	-	4,830.00	_	159,000.00	36,100.00	25,500.00	15,600.00	10 400 00	1 700.00
2,3-BENZOFLUORENE		I KOKO	2 0	8	0	1,130.00	6,610.00	218,000.00	7,530.00	5,160.00	3.130.00	208000	00000
2,3-DICHLOROANILINE		I lower	2 5	8	0	9,680.00	13,400.00	154,000.00	46,700.00	43,000.00	32,900,00	27 700 00	35/00
2,3-DICHLORONITROBENZENE		I ICACO	0 5	05//	•	9,680.00	13,400.00	154,000.00	46,700.00	43,000.00	32 900 00	37 700 00	4,780.00
2,3,4,8-TETRACHLOROPHENOL			9 ;	1750	0	48,400.00	67,200.00	769,000.00	233,000.00	215,000,00	184 000 00	130,000,00	4,760.00
2,3,6-TRICHLOROPHENOL		0 000	2 ;	1750	0	19,400.00	26,900.00	308,000.00	93,300.00	98,000,00	A5 800 00	00.000,901	23,800.00
2,4-DICHLOROPHENOL			2	1/20	0	9,680.00	13,400.00	154,000.00	48.700.00	43,000,00	000000	30,000,00	00.020.8
		COKC	178	7750	0	9,680.00	13.400.00	154 000 00	46 700 00	00:000	32,800.00	27,700.00	4,780.00
	Organics	UG/KG	178	7750	0	9 680 00	13 400 00	154,000,00	46,700.00	43,000.00	32,900.00	27,700.00	4,760.00
	Organics	UG/KG	178	7750	•	48 400 00	00.001,01	100,000,00	46,700.00	43,000.00	32,900.00	27,700.00	4,760.00
Z, TEMNINO I OLUENE	Organics	UG/KG	178	7750	, ,	20.00.00	20.002,70	00'000'89/	233,000.00	215,000.00	164,000.00	139,000.00	23,800.00
						6,000.00	13,400.00	154,000.00	46,700.00	43,000,00	32,900.00	27,700.00	4,700.00

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

									!				
Pollutant			Sample		Percent		1						
	Туре	Unit	Size	POTWS		Mean	Standard	Observed	99th	98th	95th	400	
2 4 S. TBICLI COCCUITION					1	Medil	Deviation	Maximum	Percentile	Percentile		Darcanilla	20th
2 46 TEICH OTHEROL	Organics	UG/KG	176	7750	•						1		Percentile
2. D. TEST MINISTER	Organics	UG/KG	176	7750	•	9,680.0	9,680.00 13,400.00	154,000.00	46,700.00	43,000.00	32 900 00	27 200 20	,
2 6-DICHI CBO 4 HITTO	Organics	UG/KG	176	7750	•	9,000.0	5,580.00 13,400.00	154,000.00	46,700.00	43,000.00	32.900.00	97,700,00	4,760.00
2 6-DICHI OBOBLENO	Organics	UG/KG	176	7750	• •	92,000.00	93,800.00 133,000.00 95,800.00 430,000	1,520,000.00	462,000.00	426,000.00	326,000,00	275,000,00	4,760.00
2.6-DINITROTON LIENE	Organics	UG/KG	176	7750		9,680.00	9,680.00 133,000.00	1,520,000.00	462,000.00	426,000.00	326,000.00	275 000 00	47 100.00
3-CHLOROPROPENE	Organics	UG/KG	176	7750	• •	9,680,00	13,400.00	154,000.00	46,700.00	43,000.00	32,900.00	27,700,00	4 769 00
3-METHY CHO ANTHONY	Organics	UG/KG	176	7750		000000	_	154,000.00	46,700.00	43,000.00	32,900.00	27 700 00	769.00
3-NITROANS INF	Organics	UG/KG	176	7750	, ,	90.706		31,800.00	7,210.00	5,110.00	3,130.00	2.080.00	4,760.00
	Organics	UG/KG	176	7750	· c	3,000,00		154,000.00	46,700.00	43,000.00	32,900.00	27,700,00	357.00
3 DAMETHOXOGENERAL	Organics	UG/KG	178	7750	· c	48 400 00		308,000.00	93,300.00	96,000.00	65,800,00	55 500 00	4,760.00
S. C.	Organics	UG/KG	176	7750	•	40,400.00		769,000.00	233,000.00	215,000.00	164,000,00	130,000,00	00.02c.9
4 AMANDER PART	Organics	UG/KG	176	7750	•	40,400,00		769,000.00	233,000.00	215,000.00	164,000 00	130,000,00	23,600.00
4 ABOADSHIP AND THE	Organics	UG/KG	176	7750	.	9,750.00		154,000.00	46,700.00	43,000.00	33,300,00	28 800 00	23,800,00
4CH 000 3 MITSON	Organics	UG/KG	178	7750	۰ د	00.000,4		154,000.00	46,700.00	43,000.00	32,900,00	27 700 00	4,780.00
ACH ODO 9 PET 1 PE	Organica	UG/KG	178	7750	• •	9,000,00		154,000.00	46,700.00	43,000.00	32,900,00	27,700.00	4,760.00
4CH ODOBLENS STREET	Organics	UG/KG	178	7750	•	0.0004,81		306,000.00	83,300.00	96,000.00	65,800,00	2000	4,780.00
4 NITRODUCING	Organics	UG/KG	176	7750	• •	0,000,00		154,000.00	50,400.00	43,000.00	33,000,00	28 000 00	00.026,
4.500	Organics	UG/KG	178	7750	• •	48 400 00		154,000.00	46,700.00	43,000.00	32,900.00	27,700,00	4.780.00
	Pesticides (UG/K G	175	7720	• •	83.9	07.40	769,000.00	233,000.00	215,000.00	164,000.00	139,000,00	23 800 00
	Organics	UG/KG	176	7750	0		28 900 00	308 000 00	419.00	394.00	114.00	98.30	49.20
						1	Biographic	999	83,300.00	98,000.00	65,800.00	55,500.00	9,520.00

TABLE 3. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to the Minimum Level

						į							
Pollutant			Sample		Percent		Chandard						
	Туре	Unit	Size POTW	S	Detect	Mean	Diamodia		99th	98th	95th	90th	4004
4.5.METHYLENE DUCKAN IT OF THE							Deviation	Maximum	Percentile	Percentile	Percentile	Percentile	
S-NITRO-O-10 - III III III III III III III III III	Organics	UG/KG	176	7750	•		:					a circulus	rercentile
7.12-DIMETHY BENZAMENT	Organics	UG/KG	176	7750	· c	9,680.00	9,680.00 13,400.00	-	46,700.00	43,000.00	32,900.00	27 700 00	
ACENAPHTHENE	Organics	UG/KG	176	7750	• •	00.000,0		154,000.00	46,700.00	43,000.00	32,900.00	27 700 00	4,760.00
ACENAPHTHYLENE	Organics	UG/KG	176	7750	, ,	00.000,0		154,000.00	46,700.00	43,000.00	32,900.00	27 700 00	4,760.00
ACRYLONITE E	Organics	UG/KG	176	7750	• •	9,000,00		154,000.00	46,700.00	43,000.00	32,900.00	27,700.00	4,760.00
ANIINE	Organics	UG/KG	176	7750	•	9,680.00		154,000.00	46,700.00	43,000.00	32,900,00	27,700,00	4,760.00
dioxins	Organics	UG/KG	176	7750	• •	4,030.00		159,000.00	36,100.00	25,500.00	15,600.00	10 400 00	4,760.00
PCB	Dioxins	NG/KG	174	7714	• •	90.000,e	2	154,000.00	46,700.00	43,000.00	32.900.00	27 700 00	1,790.00
PCB-1016	Pesticides UG/KG	UG/KG	175	7720	• •	3 120 00	172.00	1,820.00	556.00	532.00	311.00	218.00	4,780.00
	Pesticides UG/KG	JG/KG	175	7720	• •	263.00	2,480.00	14,700.00	13,400.00	12,300.00	5,400.00	305000	50.40
	Pesticides UG/KG	JG/KG	175	7720	• •	263.00	268.00	2,110.00	1,490.00	1,070.00	454.00	381.00	1,480.00
	Pesticides L	UG/KG	175	7720	• •	263.00	268.00	2,110.00	1,490.00	1,070.00	454.00	381.00	197.00
	Pesticides UG/KG	KG/KG	175	0222	•	20.00	768.00	2,110.00	1,490.00	1,070.00	454.00	96.50	00.781
						253.00	268.00	2,110.00	1,490.00	1,070.00	454.00	8 5	197.00

(a) Composites considered a detect if all individual congeners or PCBs are measured above the minimum level.

197.00

381.00

454.00

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

			Same		0.000								
	1		Sample		Hablad		Standard	Observed	99th	98th	95th	90th	Soth
rollutant	Type	Chile	Size	POTWs	Detect	Mean	Deviation	Maximum	Percentile	Percentile	Percentile	Percentile	Percentile
													- CICCINIC
CALCIUM	Metals	MG/KG	176	7750	100	35,300.00	46,500.00	333,000.00	313,000,00	151 000 00	84 600 00	00 003 33	00000
IRON	Metals	MG/KG	176	7750	100	18,000,00	21,100,00	229 000 00	81 400 00	20,000,00	04,000,00	96,000.00	26,200.00
MAGNESIUM	Metals	MG/KG	176	7750	100	7 460 00	17 600 00	134 000 00	75 500 00	99,300,00	00.000,60	41,700.00	12,400.00
PHOSPHORUS	Metals	MG/KG	176	7750	9 00	4 580 00	9.870.00	74 700 00	73,500,00	30,700.00	17,500.00	9,750.00	4,270.00
WOIDOS	Metals	MG/KG	176	7750	5 6	7 970 00	19 600 00	24,000,00	42,000.00	17,600.00	13,400.00	12,100.00	1,330.00
ALUMINUM	Metals	MG/KG	176	7750	5	11 200 00	14 800 00	00.000,141	00,000,00	49,100.00	21,400.00	17,200.00	2,070.00
BARIUM	Metals	MG/KG	176	7750	\$ \$	673.00	640.00	56,700.00	00,000,00	00,200.00	36,400.00	19,400.00	7,550.00
dioxins b	Dioxins	NG/KG	174	7714	5	54.10	168.00	20000	3,000.00	2,3/0.00	1,730.00	1,230.00	489.00
MANGANESE	Metals	MG/KG	176	7750	\$	538.00	9 9	2300.00	947.00	518.00	250.00	2	11.20
OCTACHLORODIBENZO-P-DIOXIN	Dioxins	NG/KG	174	7714	2 5	44.70	00.004	2,200.00	4,000.00	3,720.00	1,620.00	929.00	276.00
TITANIUM	Metals	MGMG	17R	7750	3 8	2 2 2	07.60	00.006	00.721	116.00	33.70	15.90	3.32
1234678-HEPTACH OPONBENZO B DOXIN			2 ;	8	2	3.65	140.00	2,380.00	270.00	416.00	363.00	237.00	68.50
ANTEN TE		2 K	* 1	7.74	8	9.50	37.00	525.00	103.00	73.70	27.90	14.00	3.35
	Chasacais	MG/KG	176	7750	8	1,420.00	5,040.00	35,300.00	26,500.00	15,500.00	5,020.00	1,890.00	96.50
OR VER	Metals	MG/KG	176	7750	2	46.40	113.00	852.00	546.00	218.00	128.00	75.80	23.70
2	Metals	MG/KG	176	7750	2	96.60	280.00	2,100.00	1,370.00	715.00	136.00	129.00	45.00
MIRITE	Classicals	MG/KG	176	7750	8	196.00	1,210.00	17,700.00	2,920.00	2,910.00	462.00	190.00	970
OCTACHLORODIBENZOFURAN	Dioxins	NG/KG	174	7714	8	0.65	4.38	69.50	50.0	4.75	3.31	0.55	000
1,2,3,4,8,7,8-HEPTACHLORODIBENZOFURAN	Dioxims	NG/KG	174	7714	7	1.70	8.48	71.00	31.50	27.60	5.11	2.83	8
2,3,7,8-TETRACHLORODIBENZOFURAN	Dioxins	NG/KG	174	7714	68	18.	3.48	33.70	14.80	14.70	721	3	9
FLUORIDE	Classicals	MG/KG	176	7750	8	92.20	225.00	1,510.00	1,280,00	744 00	27.00	246.0	0.47
											8.149	3.014	11.0

⁽b) Composites considered a detect if at least one congener is measured above the minimum level.

Note: Three significant figures are reported

^{*} Dioxins and Furans Reported as Toxic Equivalents

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

Dollistant			Sample		Percent		Standard	Obcorroad	1000				
rollulani	Type	Unit	Size	POTWs	Detect	Mani		Davisco	u a a a	98th	95th	90th	50th
					מכוברו	Mean	Deviation	Maximum	Percentile	Percentile	Percentile	Percentile	Percentite
BIS(2-ETHYLHEXYI) PHTHAI ATE													
	Organics	UG/KG	176	7750	62	50,500.00	50.500.00 108 000 00	801 000 00		į			
MOCIONA	Metals	MG/KG	176	7750	ç	46.00	00:00	00.000,150	00.000,626	459,000.00	459,000.00	191,000.00	148,000.00
YTTRIUM	Metals	MCKG	1,00		3	3.0	43.80	570.00	181.00	93.50	93.50	56 40	20.00
TOLUENE			2	200	9	3.02	3.51	16.20	14.30	13.50	43.65		
2.PROBANONE	Organics	OG/KG	176	7750	6	40,800.00	40,800.00 118,000.00	1.180.000.00	575,000,00	00:00	06.61	6.9	6.80
	Organics	UG/KG	176	7750	28	58.400.00	58.400.00 323.000.00	2 430 000 00	00.000,000	439,000.00	439,000.00	238,000.00	93,400.00
1,4,3,5,7,8-HEXACHLORODIBENZO-P-DIOXIN	Dioxins	NG/KG	174	7714	40	326	00.000,040	4,430,000.00	1,460,000.00	738,000.00	738,000.00	74,900.00	39,700.00
BORON	Metals	MG/KG	176	7750	? 9	47.0		73.70	28.50	47.70	47.70	12.10	7.21
P-CRESOL	Organics	ווטענט	170	3 5	Q :	28.10	99	310.00	304.00	293.00	293.00	182.00	84.40
1,2,3,4,7,8-HEXACHLORODIBENZOFI IRAN			2	8	₹	46,200.00	46,200.00 112,000.00	1,160,000.00	542,000.00	430,000,00	430,000,00	300 000	OF: 10
METHYLENE CHI OBINE	Croxins	S/S	174	7714	₽	5.05	21.20	150.00	109 00	20.00	00.000,001	900,000,000	202,000.00
	Organics	UG/KG	176	7750	42	7.820.00	37 900 00	262 000 00	44.000.00	03.67	/3.20	15.30	8.17
1,4,3,7,8,9-HEXACHLORODIBENZO-P-DIOXIN	Dioxins	NG/KG	174	7714	ָּבְ		00.000,10	202,000,00	184,000.00	114,000.00	114,000.00	13,600.00	1,930.00
ANTIMONY	Metals	MG/KG	170	7 6	3	2.08	9	73.70	19.60	17.90	12.70	3.92	000
CYANIDES (SOLUBLE SALTS AND COMPLEXES)	Cardenda	0	2 (8	8	.	19.10	680.00	20.50	9.88	4.55	3.20	8
HEXANOIC ACID			9/	1750	37	14.30	54.00	372.00	295.00	147.00	65.30		8 8
1,2,3,6,7,8-HEXACHLOROTHRENZOELIBAN		9 Kg	1/8	7720	SS	41,200.00	95,300.00	1,960,000.00	406,000.00	280,000,00	202 000 00	427 000 00	8 6
2-BUTANONE		S C	7	7714	æ	1.20	5.55	73.70	15.00	15.00	6	00:000,121	8.6
PHENOL		5 Kg	176	7750	ਡ	18,300.00	96,400.00	1,540,000.00	541,000.00	510 000 00	20000	900	0.00
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Organics	o Ng Ng	178	7750	ੜ	12,200,00	40.400.00	820 000 00	182 000 00	000000	00.006,51	00.0TC,C	00.0
2,4,2-1 RICHLOROPHENOXYACETIC ACID	Pesticides	UGAKG	176	7750	80	15.20	424.00	00.000,000	00,000,00	00:000	45,200.00	32,200.00	0.00
2,3,4,6,7,8-HEXACHLORODIBENZOFURAN	Dioxins	NG/KG	174	77.14	; ;		3.0	2,170,00	72.70	58.30	38.70	22.70	0.00
1,2,3,4,7,8,9-HEPTACHLORODIBENZOFURAN	Dioxins	NG/KG	174	77.44	7 8	g ;	5.22	73.70	14.80	13.10	3.43	1.19	0.00
					97	9.0	0.72	8.42	25.	1.45	1.11	0.20	0.00

Note: Three significant figures are reported

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

			Sample		Percent		Standard	Observed	99th	9Rth	490	1700	
Pollutant	Type	Unit	Size	POTWs	Detect	Mean	Deviation	Maximum	Darcontilo	Doggandillo		illine t	uno -
									ובורבוווופ	Leicennie	Percentile	Percentile	Percentile
2,3,4,7,8-PENTACHLORODIBENZOFURAN	Dioxins	NG/KG	174	7714	26	6.27	27.50	00 000		;	1		
1,2,3,4,7,8-HEXACHLORODIBENZO-P-DIOXIN	Dioxins	NG/KG	174	7714	2	4 .	9.13	366.00	74.50	68.00	45.50	5.33	0.00
RERYLLINA			-	*	ę	1.48	5.91	73.70	17.90	16.20	13.40	2.29	000
	Metals	MG/KG	176	7750	22	0.14	0.36	3.90	1.17	96.0	02.0	6	8
1,z,s,r,s-PENTACHLORODIBENZOFURAN	Dioxins	NG/KG	174	7714	22	0.53	2.62	36.80	7.15	90	163	97	86.6
PCB b	Pesticides	UG/KG	175	7720	19	393.00	1,790.00	13,400,00	8.700.00	2 470 00	1 20 00	64.0	0.0
1,2,3,7,8-PENTACHLORODIBENZO-P-DIOXIN	Dioxins	NG/KG	174	7714	18	4.56	25.50	368.00	66 70	60.00	27.60	903.00	00.0
ACETIC ACID (2,4-DICHLOROPHENOXY)	Pesticides	UG/KG	176	7750	16	3.62	16.50	422.00	42.00	3.5	00.73 07.89	25.5	00:0
1,2,3,7,8,9-HEXACHLORODIBENZOFURAN	Dioxins	NG/KG	174	7714	16	1.31	8.53	126.00	19.50	3.5	63.73	0.11	0.00
2,3,7,8-TETRACHLORODIBENZO-P-DIOXIN	Dioxins	NG/KG	174	7714	9	1.71	8.45	116.00	28.30	5 K	17.6	8	0.00
N-HEXACOSANE	Organics	UG/KG	176	7750	51	2,920.00	31,200.00	498,000,00	44 200 00	4 25 25	BC.7	SP.7	0.00
N-TETRACOSANE	Organics	UG/KG	176	7750	5	6.620.00	43,800,00	650 000 00	97 700 00	18,300.00	3,470.00	00.099	0.00
2,4,5-TRICHLOROPHENOXYPROPIONIC ACID	Pesticides	UG/KG	178	7750	51	123	13.46	124 00	00.001,10	7,100.00 10.00	24,400.00	2,830.00	0.00
THALLIUM	Metals	MC/KG	178	7750	, 1			10.12	93.50	43.50	31.90	11.80	00.0
N-DODECANE	Organics	newe.	178	7750	2 ;	2.000) A C C C C C C C C C C C C C C C C C C	10.10	4.42	3.10	8.	0.40	0.00
N-TETRADECANE	Central	240		3 1	₹ :	12,000.00	43,200.00	525,000.00	221,000.00	186,000.00	83,000.00	20,000.00	0.00
SALE TANGET AND THE SALE OF TH		2	9/1	1750	7	6,480.00	28,000.00	352,000.00	94,300,00	93,300.00	46,600.00	8,640.00	000
		OG/KG	178	7750	7	6,220.00	42,200.00	597,000.00	134,000.00	96,900.00	13,100,00	2 2 10 00	8
N-ECOSAVE	Organics	CGAKG	178	7750	5	3,990.00	15,600.00	198,000.00	63,800.00	50,300,00	21 800 00		
NHEXADECANE	Organics	COKG	178	7750	4	6,130.00	49,600.00	758,000,00	110 000 00	36 700 00	00.000.00	80000	8 6
NOCTACOSANE	Organics	UG/KG	176	7750	4	3.780.00	27,300,00	413 000 00	45,300,00	20,000	24,500.00	0.991	8 6
ENDOSULFAN-II	Pesticides	UGIKG	175	7720	\$	7 70	20.00	787	96.56.5	32,300.00	00.006,1%	1,620.00	800
					!		20.02	3.60	M:0/1	128.00	4.80	12.50	000

(b) Composites considered a detect if at least one PCB aroctor is measured above the minimum level.

Note: Three significant figures are reported

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

			Sample		Percent		Standard	Observed	99th	4000	1120		
rollutatil	Type	Unit	Size	POTWS	Detect	Mon	i i i i i i i i i i i i i i i i i i i			11100	Hack	900	50th
					Torico.	Meal	Deviation	Maximum	Percentile	Percentile	Percentile	Percentile	Percentile
CARBON DISULFIDE	Organics	UG/KG	176	7750	Ş	,							
PENTACHLORONITROBENZENE	Poeticidos		2 ;		2	127.00		23,500.00	496.00	413.00	76.80	10.20	000
N-DECANE	Saprance .		3	1720	2	158.00	1,160.00	8,830.00	3,970.00	156.00	20.20	31.0	
2007 400	Organics	OG/KG	176	7750	10	4,180.00	22,400.00	199 000 00	140,000,00	27 800 00	9	2	8.0
FCB-1260	Pesticides UG/KG	UG/KG	175	7720	9	97.20		4 040 00	00.000,01	00.0000,10	00.008,21	0.00	0.00
COBALT	Metals	MG/KG	176	7750		4 4		4,010.00	2,190.00	650.00	494.00	0.00	0.00
BUTYL BENZYL PHTHALATE	Organics	UG/KG	176	7750		C1.1.		103.00	17.00	13.90	6.30	00:0	00.0
PCB-1248	Desticides 110.00	2001	2 }	3	70	4/5.00	2,010.00	13,400.00	10,100.00	6,610.00	2,720.00	0.00	000
N-DOCOSANE	cappones .	5 K	2	7720	o	33.60	193.00	5,200.00	600.00	376.00	231 00	5	8 8
N OCTAPICANIE	Organics	OGKG	176	7750	æ	907.00	5,010.00	70,200,00	24 300 00	7 220 00	90.01	8	3
N-CLADECANE	Organics	UG/KG	176	7750	€0	2,270,00	11 800 00	130,000,00	F8 400.00	1,220.00	00.0//c	0.00	0.00
PCB-1254	Pesticides UG/KG	UGAKG	175	77.30	• •		00,000,	30,000,00	26,400.00	33,400,00	13,600.00	0.00	000
CHLOROBENZILATE	Decthides 10.00	2	? ;	2	0	762.00	1,280.00	9,350.00	5,490.00	2,430.00	1,240.00	0.00	00.00
P-CYMENE	e colonos		2	07/7	7	5.48	21.50	104.00	101.00	97.70	54.50	8	5
BEN7CASE LOBANTHENE	Oganics	OGIKG	178	7750	_	1,390.00	7,410.00	84,300.00	35,100,00	33,300,00	7 800 00		8 8
SELECTED TO THE NE	Organics	UG/KG	178	7750	80	181.00	1.750.00	34 200 00	1 330 00	4 400 00	1,090.00	80.0	90.0
BE 1A-BHC	Pesticides UG/KG	UGAKG	175	7770	q		;	00.0041.0	00.000	.160.00	232.00	000	0.00
ENDRIN	Pesticides 1 KAKG	C WC	176		ь (8 .3	01.15	163.00	51.50	36.80	22.80	0.00	0.00
O-CRESOL	Ordanica	040	? ;	71.50	20	2.65	12.60	123.00	62.70	42.00	11.70	0.00	000
FLUORANTHENE		9490	2	86/	\$	7,500.00	47,800.00	329,000.00	327,000.00	257,000.00	496.00	900	000
P-CH OBOANE ME		5 (A)	178	7750	S	331.00	1,870.00	19,400.00	11,500.00	8,200,00	140.00	5	8
	Organics	OG/KG	176	7750	ĸ	397.00	2,930.00	40.200.00	\$ 680.00	444000		3	3
	Organics	UG/K G	176	7750	ď	320.00	00000	27 400 00		3.7	DO:/C7	0.0	0.00
TRICHLOROFLUOROMETHANE	Organics	UG/KG	178	7750) i	3 1	4,000.00	37,100.00	00'000'A	2,600.00	345.00	0.00	0.00
	1		2	3	n	2.2	220.00	3,970.00	1,800.00	116.00	4.06	0.00	000

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

			Sample		Percent		Standard	Observed	9984	4480	1986	1.00	
Pollutant	Type	Unit	Size	POTWS	Detect	Moon	Doulation				II)ce	E306	50th
					20100	Media	DEVIANOR	Maximum	Percentile	Percentile	Percentile	Percentile	Percentile
2 Heyanionia													
Z-1 IE ASSIGNE	Organics	CG/KG	176	7750	S	28.60	344.00	12,700.00	468.00	441 00	6	5	6
BENZO(A)ANTHRACENE	Organics	UG/KG	176	7750	4	104.00	1,250,00	40.500.00	1 160 00	00 800	8 6	8.6	8.0
BENZO(K)FLUORANTHENE	Organics	UG/KG	176	7750	4	136.00	1.310.00	31 200 00	1 390 00	1 060 00	8 6	800	000
BENZOIC ACID	Organics	UG/KG	176	7750	4	6,620.00	4	835,000.00	227 000 00	48 900 00	800	90.0	0.00
CHRYSENE	Organics	UG/KG	176	7750	4	102.00		32.400.00	1,130,00	1,000,00	8 6	8 6	0.00
DI-N-BUTYL PHTHALATE	Organics	UG/KG	176	7750	4	1,690.00	13,100.00	322,000.00	56,300,00	11,800,00	8 6	3 8	90.0
DIELDRIN	Pesticides	UG/KG	175	7720	4	1.05	5.54	47.50	29.50	23.40	8 6	8 8	0.00
ETHYLBENZENE	Organics	UG/KG	176	7750	4	24.80	321.00	20,200,00	520.00	32.00	8 8	8 8	0.00
HEPTACHLOR EPOXIDE	Pesticides UG/KG	UG/KG	175	7720	•	09:0	3.14	17.90	16.90	13.80	8 8	8 8	0.00
M-XYLENE	Organics	UG/KG	176	7750	•	27.00	254.00	6.910.00	468.00	3 2 2	8 8	3 8	0.00
TETRACHLOROMETHANE	Organics	VG/KG	176	7750	•	4.05	26.10	339.00	08 08	8.28	8 8	8 8	0.00
ALDRIN	Pesticides	UGAKG	175	7720	၈	9.0	3.70	38.80	19.40	13.70	3 5	3 8	0.00
BENZO(A)PYRENE	Organics	UG/KG	176	7750	6	78.80	1,140.00	24,700.00	968.00	749.00	8 8	3 5	8.8
CHLORPYRIFOS	Pesticides	UG/KG	178	7750	6	4.77	39.40	529.00	79.40	2	8 8	3 5	8 8
ISOBUTYL ALCOHOL	Organics	UGAKG	178	7750	6	9.0	10.60	165.00	6.37	24		3 8	8 8
MIROFEN (TOK)	Pesticides UG/KG	UG/KG	175	7720	6	1.59	13.30	195.00	26.80	22.50	8 6	3 8	8 8
O+P XYLENE	Organics	UG/KG	178	7750	က	8.30	101.00	2,740.00	155.00	200	8 8	3 8	8 8
STYRENE	Organics	UG/KG	178	7750	60	2,490.00	21,000.00	310,000.00	51,200.00	28.200.00	8 8	3 8	8 8
TETRACHLOROETHENE	Organics	UG/KG	176	7750	6	40.50	300.00	4,050.00	1,270.00	526.00		3 8	8 8
TRIFLURALIN (TREFLAN)	Pesticides UG/KG	UG/KG	175	7720	6	3.78	24.90	235.00	117.00	56	8 8	3 5	8 6
										00:00	3	3	3

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

			Sample		Percent		Standard	Ohsarvad	4+00	.,,,,			
Poliutant	Type	Unit	Size	POTME	Dotoct	100		ממפו אבת	UI66	98th	95th	90th	50th
			į	2	חבוברו	Mean	Deviation	Maximum	Percentile	Percentile	Percentile	Percentile	Dorcentile
												- Cocumie	L CI CCIIIIE
AZINPHOS METHYL	Pesticides UG/KG	UG/KG	176	7750	r	Š	:						
CHLOROBENZENE				2	v	19.4 19.4	36.10	279.00	127.00	0.00	000	5	5
OLI A PLAN	Organics UG/KG	OG/KG	176	7750	2	31.20	263.00	8.920.00	1 420 00	•			0.00
DELIA-BHC	Pesticides UG/KG	UG/KG	175	7720	•	•			1,420.00	196.00	00.0	0.00	000
DIAZINON	Destinites 11010	(A)			4	97.1	8.88	81.80	26.80	21.00	00'0	000	8
DIBENZOFIIRAN	Cappings .	9 Y S	1/6	1750	7	2.63	19.70	151.00	64.30	000	5		
	Organics	CG/KG	176	7750	7	275.00	3,690.00	59 300 00	00,000		8.0	3	8
NALED (DIBROM)	Pesticides UG/KG	UG/KG	176	7750	r		2 0	00.000,00	2,340.00	0.00	0.00	0.00	0.00
PHENANTHRENE	Organica	02/01		3 1	٧	4.16	47.30	484.00	299.00	207.00	00.0	0.00	8
PHOSPHORIC ACID TRI-D-TOLY I ESTED		9 1	9/	7/20	7	348.00	2,860.00	40,200.00	7,370.00	2.850.00	8	2	
CANITON ATOM	Pesticides	OG/KG	176	7750	7	127.00	930.00	7 080 00	4 380 00	443.00	8	3	800
SANIOA (EPN)	Pesticides UG/KG	UG/KG	176	7750	c			00:00:	4,300.00	447.00	00.0	000	00.00
TETRAETHYLPYROPHOSPHATE	Pasticidae 110.00	וטעט			7	77.	02.11	545.00	28.20	000	0.00	00:00	000
1,2:3,4-DIEPOXYBUTANE			2	8	7	53.80	622.00	20,000.00	1,720.00	000	000	5	2
		S S S S S S S S S S S S S S S S S S S	178	7750	7	229.00	2,720.00	73,900.00	2,180 00	٤	8	3 3	3
CA-LOCACIBENZENE	Organics	UG/KG	178	7750	•	8	60100	40,000,00	00:00:1	3	8.	00.0	0.00
1,4-DIOXANE		LIG/KG	178	1750	4 (06.00	004:00	12,000.00	3,070.00	647.00	0.00	000	0.00
4-METHYL-2-PENTANONE) Novice	2 5	8	7	13.90	518.00	35,300,00	52.30	000	00.00	000	000
4,4'-boT			9 !	8	7	2.68	27.00	567.00	32.20	9.65	000	8	2
ACETOPHENONE	_	9 N/90	175	7720	7	0.51	4.42	121.00	13.30	933	8	8	8 6
STO VIOLE		OG/KG	178	7220	7	125.00	908.00	6,920,00	353000	33700			3
	Pesticides L	UG/KG	175	7720	C	700			20.000	B. 155	300	000	0.0
ALPHA-TERPINEOL		1 IGARG	474	1	4 (0.27		96.94	11.70	3.45	0.00	0.00	000
ANTHRACENE			2 !	2	~	19.90	150.00	2,560.00	501.00	0.00	000	000	8
BIPHENY		5 1	9/1	1750	7	87.20	894.00	27,200.00	1,800.00	000	8	8	
	Organics	UG/KG	178	7750	-	59,000.00 947,000.00		15,300,000.00	5,640.00	80	8 6	8 6	8 8
										3	3	3,0	3

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

			Sample		Percent		Standard	Observed	99th	98th	0.5th	4100	1403
Pollutant	Type	Unit	Size	POTWs	Defect	Mean	Devlation	Maximum	Percentile	Percentile	Dercentile	Doggantile	Hine C
											- cremme	retcenne	Percentile
CHLOROFORM	Organics	UG/KG	176	7750	-	20 40	454 00	15 000 00	Š	ć	1		
DI-N-OCTYL PHTHALATE	Organics	UG/KG	176	7750	-	31.70	588.00	18 300.00	8.6	9 6 6	000	00:0	0.00
DIMETHOATE	Pesticides UG/KG	UG/KG	176	7750	· •	9.00	9.00	940.00	0.00	0.00	0.00	0.0 0	0.00
DIMETHYL PHTHALATE	Organics	US/KG	178	7750	- •	20.0	00.01	340.00	0.00	00.0	0.00	0.00	0.00
ENDOSULFAN-I	Pastiridae 110.00	TICKG		2 6	- ,	00.001	2,010.00	32,400.00	0.00	00.0	0.00	0.00	0.00
THE STATE OF THE PARTY OF THE P		ָלְיבְיבְיבְיבְיבְיבְיבְיבְיבְיבְיבְיבְיבְ	6	97/	-	0.29	4.21	125.00	1.93	0.00	0.00	00:0	000
N-WITKOSOOFTHENT LAMINE	Organics	OG/KG	176	7750	-	101.00	1,290.00	19,700.00	00'0	000	0.00	000	8
NAPHTHALENE	Organics	UG/KG	176	7750	-	104.00	1,420.00	28,700.00	316.00	000	8	8	
TRANS-1,2-DICHLOROETHENE	Organics	UG/KG	176	7750	-	12.50	303.00	10,700.00	0.00	900		8 6	8 8
TRICHLOROETHENE	Organics	UG/KG	176	7750	•	18.50	220.00	3,300,00	45.40		8 6	3 8	8.9
2-CHLORONAPHTHALENE	Organics	UG/KG	178	7750	-	54.80	714.00	11,100.00	000		8 6	3 8	8.0
2-METHYLNAPHTHALENE	Organics	UG/KG	176	7750	-	533.00	8,380.00	136,000,00	8 6	8 6	8 6	800	80.0
2-PICOLINE	Organics	UG/KG	178	7750	-	555.00	7 300 00	365,000,00	8 6	8 8	8.6	8 6	00:0
4,4'-DDE	Pesticides	UGKG	175	7720	-	0.72	97 0	40000	8 8	8 6	0.00	8	000
AMENE, 2,4,5-TRIMETHYL-	Organics	OG/KG	178	7750		7 . 6	2 2 2	00.001	8 6	0.0	0.00	000	0.00
ARAMITE	Organics	UG/KG	178	77%	· c	2 6	2,010,0	00.000,00	900	8.	000	8	000
AZINPHOS ETHYL	Desticides		2,	3	> (3	3	8.	0.00	00:0	0.00	0.00	0.00
	resuccions.	3	9	8	0	0.00	0.00	0.00	0.00	0.00	0.0	00:0	000
BENZANITHKONE	Organics	O XO	176	7750	0	0.00	0.00	0.00	00.0	0.00	000	00.00	000
BENZENE	Organics	UG/KG	178	7750	0	0.07	3.50	220.00	000	000	8		
BENZENETHIOL	Organics	UG/K G	176	7750	0	2.43	88.70	3,250.00	00.0				8 6
BENZIDINE	Organics	UG/KG	176	7750	0	000	000	900	5	8	8 8	8 8	8 8
									3	3.0	3	3.5	3

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

Pollutant	í		odnible		Percent		Standard	Observed	99th	98th	05th	4000	100
	Type	Chiit	Size	POTWs	Detect	Mean	Deviation	Maximum	Percentile	Dercentile	Opposition	1100	une -
										נפורפווווב	Percentile	Percentile	Percentile
BENZO(GHI)PERYLENE		0	,										
BENZONITBIL 2 5 DIGITAL OF THE STATE OF THE		0.5/SG	1/6	7750	0	13.80	383.00	12,900.00	000	0	6	4	,
DEINZONITRILE, 3,3-DIBROMO-4-HYDROXY.	Organics	UG/KG	176	7750	0	000	0			3	0.00	000	0.00
BENZYL ALCOHOL	Organics	וט/אט	176	7750	, (0.0	8	0.00	0.00	0.00	0.00	00.00	000
BETA-NAPHTHYI AMINE			2	200	>	82.50	2,270.00	156,000.00	00.0	0.00	9	8	5
	Organics	OG/KG	176	7750	0	0.00	0.00	000	5	0		8.0	3.0
DIPHENTL, 4-NIIRO	Organics	UG/KG	176	7750	c	5			3	0.00	0.00	0.00	0.00
BIS(2-CHLOROETHOXY)METHANE	Organica	0201	,		•	8.5	0.00	0.00	0.00	0.00	00.0	0.00	000
BIS(2-CH! OBOETHY) STUEB		26/20	9/-	//20	0	0.00	00.00	00.0	0.00	00.0	8		
	Organics	UG/KG	176	7750	0	000	8	5			8	3.5	3
BIS(2-CHLOROISOPROPYL) ETHER	Organics	UG/KG	176	7750	•	9 6		3	9.5	0.00	0.00	0.00	000
BROMODICHLOROMETHANE	- Cranning	020	? ;	3 1	>	8	0.00	0.00	00.0	00.00	0.00	000	000
PROMOMETHANE		2	2	1750	0	0.00	0.00	00.0	0.00	000	8	5	8
	Organics	CGKG	176	7750	0	800	8	2	6			3	8
CAPTAFOL	Pesticides	UG/KG	175	00.77	• •		3.5	3.5	0.00	0.00	000	0.00	0.00
CAPTAN	Deathaidea	10.00	? ;	2	5	0.00	0.00	000	0.00	0.00	00:0	0.00	0.00
CARBAZOLE		200	e E	1720	0	0.88	17.30	968.00	00.0	000	000	8	5
	Organics	9 8 8	178	7250	0	000	000	5	8		2	3	3
CARBOPHENOTHION (TRITHION)	Pesticides UG/KG	UG/KG	175	0644	c			8	3	800	000	000	000
CHLORDANE	Pesticides	1 ICACO	7.		> (3	8	0.00	0.00	0.00	00.00	00.0	00:00
CHLOROACETONITRI F			2	2//	0	.	30.20	489.00	0.00	00.0	0.00	000	8
		9 5 5	1/8	720	o	00.0	000	000	000	8	5	8	
	Organics	UG/KG	178	7750	0	90.0	2.05	75 10	8	8	3 6	3	8.0
CHLOROFENVINPHOS	Pesticides	UG/KG	178	7750	c	6			3	8.0	8.0	0.00	9.00
CHLOROMETHANE		2		3	>	3	8	0.00	0.00	0.00	0.0	0.00	0.00
CIODRIN			2 !	8	0	0.02	2.67	97.80	0.00	000	00:0	000	6
	resuctoes OG/NG	S S S S S S S S S S S S S S S S S S S	173	7814	0	0.35	5.71	93.00	000	000	0.00	900	

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

			Sample	THE REAL PROPERTY OF THE PERSON NAMED IN COLUMN 1	Percent		Standard	Observed	99th	98th	95th	90th	50th
Pollutant	Type	Unit	Size	POTWs	Detect	Mean	Devlation	Maximum	Percentile	Percentile	Percentile	Dercentile	Derconfile
											2111112		Leicellille
CIS-1,3-DICHLOROPROPENE	Organics UG/KG	UG/KG	176	7750	0	00.0	0.00	000	c	5	5	6	ć
COUMAPHOS	Pesticides UG/KG	UG/KG	176	7750	0	0.00	000	000	000		8 6	8.6	90.0
CROTONALDEHYDE	Organics UG/KG	UG/KG	176	7750	0	0.27	9.78	358.00	000	800	8 8	8 6	00.0
CROTOXYPHOS	Organics	UG/KG	176	7750	0	0.0		0.00	0.00	000	000	8 6	8 6
DEMETON	Pesticides UG/KG	UG/KG	176	7750	0	0.00	00:0	0.00	00'0	000	000		8.5
DI-N-PROPYLNITROSAMINE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00.0	0.00	000	000	800
DIALLATE	Pesticides UG/KG	UG/KG	175	7720	0	1.69	25.20	394.00	00.00	000	000		800
DIBENZO(A,H)ANTHRACENE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	0.00	000	000	900	8 6
DIBENZOTHIOPHENE	Organics	UG/KG	176	7750	0	1.10	40.20	1,470.00	0.00	000	000	000	000
DIBROMOCHLOROMETHANE	Organics	UG/KG	176	7750	0	0.00	0.0	0.00	000	000	000	000	000
DIBROMOMETHANE	Organics	UGAKG	176	7750	0	0.00	0.00	0.00	000	0.00	000	000	000
DICHLORVOS	Pesticides	UG/KG	176	7750	0	0.00	0.00	0.00	0.00	0.00	000	000	000
DICROTOPHOS (BIDRIN)	Pesticides UG/KG	UG/KG	178	7750	0	0.41	15.00	550.00	0.00	0.00	0.00	000	000
DIETHYL ETHER	Organics	UG/K G	176	7750	0	0.00	0.00	0.00	0.00	0.0	0.00	80	80
DIETHYL PHTHALATE	Organics	UG/KG	178	7750	0	0.00	0.0	0.00	0.00	0.0	000	000	000
DIMETHYL SULFONE	Organics	UG/KG	178	7750	0	3.00	48.40	784.00	0.00	000	0.00	000	000
DIOXATHION	Pesticides	UG/KG	176	7750	0	0.00	0.00	000	0.00	000	000	000	000
DIPHENYL ETHER	Organics	UG/KG	178	7750	0	3.98	234.00	16,400.00	0.00	0.0	000	000	000
DIPHENYLAMINE	Organics	UGAKG	176	7750	0	125.00	2,010.00	32,600.00	00:0	000	000	000	000
DIPHENYLDISULFIDE	Organics	UG/KG	178	7750	0	0.00	0.00	0.00	0.00	0.00	000	0.0	0.00

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

			Sample		Percent		Standard	Observed	99th	98th	95th	90th	Soth
Pollutant	Type	Unit	Size	POTWs	Detect	Mean	Deviation	Maximum	Percentile	Percentile	Percentile	Percentile	Percentile
DISULFOTON	Pesticides UG/KG	UG/KG	176	7750	0	0.00	0.00	0.00	00.0	00.0	0.00	0.00	0.00
ENDOSULFAN SULFATE	Pesticides UG/KG	UG/KG	175	7720	0	0.00	0.00	0.00	00'0	0.00	0.00	0.00	0.00
ENDRIN ALDEHYDE	Pesticides UG/KG	UG/KG	175	7720	0	0.00	0.00	0.00	0.00	000	0.00	0.00	0.00
ENDRIN KETONE	Pesticides UG/KG	UG/KG	175	7720	0	0.00	0.00	0.00	00:00	0.00	0.00	0.0	0.00
ETHANE, PENTACHLORO-	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00'0	0.00	0.00	0.00	000
ETHION	Pesticides UG/KG	UG/KG	176	7750	0	0.00	0.00	0.00	0.00	00.0	0.00	0.00	0.00
ETHYL CYANIDE	Organics	UG/KG	176	7750	0	48.40	1,770.00	64,700.00	00.00	00.0	0.00	0.0	0.00
ETHYL METHACRYLATE	Organics	UG/KG	176	7750	0	0.00	0.00	000	00'0	00:00	0.00	0.00	0.00
ETHYL METHANESULFONATE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00:0	0.00	0.00	0.00	00:00
ETHYLENETHIOUREA	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.00
FAMPHUR	Pesticides UG/KG	UG/KG	178	7750	0	0.00	0.00	0.00	0.00	0.00	0.0	0.00	00:0
FENSULFOTHION	Pesticides UG/KG	UG/KG	176	7750	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	00.0
FENTHION	Pesticides UG/KG	UG/KG	176	7750	0	0.00	0.00	0.00	00.0	0.00	0.00	0.0	00:00
FLUORENE	Organics UG/KG	UGKG	176	7750	0	0.00	0.00	0.00	0.00	0.00	0.00	00.00	00:0
HEPTACHLOR	Pesticides UG/KG	UGKG	175	7720	0	0.02	0.62	22.60	0.00	0.00	000	0.00	00:00
HEXACHLOROBENZENE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00.0	0.00	0.00	000	00:0
HEXACHLOROBUTADIENE	Organics	UGKG	176	7750	0	0.00	0.00	000	000	00.0	0.00	000	00:0
HEXACHLOROCYCLOPENTADIENE	Organics	UG/KG	178	7750	0	0.00	0.0	0.00	00.0	0.00	000	000	000
HEXACHLOROETHANE	Organics	UG/KG	176	7750	0	0.0	0.00	0.00	00.0	00.0	0.00	0.0	000
HEXACHLOROPROPENE	Organics	UG/KG	176	7750	0	0.00	0.00	000	000	0.00	00.0	0.00	00:0

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

			Sample		Percent		Standard	Observed	99th	98th	0.664	4100	
Pollutant	Tvna	#icil	Cize	DOTIME	10000	1						1106	anta
	od f		- [2	Detect	Mean	Deviation	Maximum	Percentile	Percentile	Percentile	Percentile	Percentile
INDENO(1,2,3-CD)PYRENE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	0.00	000	6	000	8
IODOMETHANE	Organics	UG/KG	176	7750	0	00.00	00.00	00.00	000	000			800
ISODRIN	Pesticides UG/KG	UG/KG	175	7720	0	00.00	00:0	00.00	000		8 6	8 6	8.0
ISOPHORONE	Organics	UG/KG	176	7750	0	00.0	0.00	000		8 8	8 8	8 8	00.0
ISOSAFROLE	Organics	UG/KG	176	7750	0	00.0	0.00	00.0	000		8 8	8 8	00.0
LEPTOPHOS	Pesticides UG/KG	UG/KG	176	7750	0	0.35	9.84	319.00	000		8 8	3 5	8 8
LINDANE (GAMMA-BHC)	Pesticides UG/KG	UG/KG	175	7720	0	0.17	2.54	37.80	00.0		8 6	8 8	8 6
LONGIFOLENE	Organics	UG/KG	176	7750	0	0.00	00.00	0.0	00.0			8 6	8 8
MALACHITE GREEN	Organics	UG/KG	176	7750	0	00.0	00.0	0.00	000	000	8 8	3 6	8 8
MALATHION	Pesticides UG/KG	UG/KG	176	7750	0	00.0	00.0	0.00	000	000	8 6	8 6	8 8
MESTRANOL	Organics	UG/KG	176	7750	0	00.0	00.0	000	0.00	000	8 0	8 6	800
METHAPYRILENE	Organics	UG/KG	178	7750	0	00.0	00.0	0.00	000	000	000	8 0	8 8
METHOXYCHLOR	Pesticides UG/KG	UG/KG	175	7720	0	0.00	0.00	0.00	000	000	000	80	000
METHYL METHACRYLATE	Organics	UG/KG	178	7750		0.00	0.0	0.00	00.0	000	000	000	000
METHYL METHANESULFONATE	Organics	UG/KG	176	7750	0	0.00	0.0	0.00	00.00	80	000	900	000
METHYL PARATHON	Pesticides UG/KG	UG/KG	178	7750	0	0.0	0.00	00.0	0.00	000	000	900	000
MEVINPHOS (PHOSDRIN)	Pesticides UG/KG	UG/KG	178	7750	0	0.13	4.08	148.00	0.00	000	000	000	000
MIREX	Pesticides	UGAKG	175	7720	0	0.00	000	0.00	0.00	0.0	000	000	000
MONOCROTOPHOS	Pesticides UG/KG	UG/KG	178	7750	0	0.00	0.00	0.00	0.00	0.00	000	000	000
N-NITROSOD-N-BUTYLAMINE	Organics	UG/KG	176	7750	0	0.00	00:00	0.00	0000	0.00	000	000	000

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

			-										
			sample		Percent		Standard	Observed	99th	98th	95th	9045	50th
Poliutant	Туре	Cnit	Size	POTWS	Detect	Mean	Devlation	Maximum	Dorogella	0.000			
									Leiceillie	rercentile	Percentille	Percentille	Percentile
N-NITROSODIETHYLAMINE	o incorp	2	,		•	,							
THE STATE OF THE S	Silve		9/1	06//	0	0.00	0.00	0.00	0.00	00.0	0.00	00.00	000
T-14-1 TOOODIME INTLAMINE	Organics	UG/KG	176	7750	0	0.00	00.0	00:00	0.00	000	6		
N-NITROSOMETHYLETHYLAMINE	Organics	UG/KG	176	7750	0	0.00	00.0	000	0		8	00.0	8.0
N-NITROSOMETHYLPHENYLAMINE	Organics	UG/KG	176	7750	0	0.00	0.00	000	00.0	8. 6	800	0.00	0.00
N-NITROSOMORPHOLINE	Organics	UG/KG	176	7750	0	00.0	00.0	000	000	8 6	8.5	9.0	0.00
N-NITROSOPIPERIDINE	Organics	UG/KG	176	7750	0	0.00	0.00	00:0	000	8 6	8 6	3 5	000
N,N-DIMETHYLFORMAMIDE	Organics	UG/KG	176	7750	0	0.00	00.0	0.00	00.0	000	8 8	8 6	86.6
NITROBENZENE	Organics	UG/KG	176	7750	0	6.72	100.00	1,550.00	00.0	000	8 8	8 6	86
O-ANISIDINE	Organics	UG/KG	176	7750	0	0.00	00.0	000	000	000	000	8 8	8 6
O-TOLUDINE	Organics	UG/KG	176	7750	0	0.00	0.00	000	000	000	900	8 6	8 8
O-TOLUIDINE, 5-CHLORO-	Organics	UG/KG	176	7750	0	0.00	0.00	000	0.00	000		8 8	8 6
P-DIMETHYLAMINOAZOBENZENE	Organics	UG/KG	176	7750	0	0.00	0.00	00:0	0.00	000	000	800	86
	Organics	UGKG	178	7750	0	0.00	0.00	0.00	0.00	0.00	000	000	000
TAKALHON	Pesticides UG/KG	OG/KG	178	7750	0	0.00	0.00	0.00	000	0.00	000	000	900
PENIACHLOROBENZENE	Organics	UG/KG	178	7750	0	0.00	0.00	0.00	0.00	000	000	000	
PENIACHLOROPHENOL	Organics	UG/KG	178	7750	0	204.00	3,300.00	53,400.00	0.00	000	000		
PENIAMETHYLBENZENE	Organics	UG/KG	178	7750	0	0.00	0.00	0.00	0.00	0.00	000		
PERYLENE	Organics	UG/K G	176	7750	0	51.80	1,890.00	69,300.00	0.00	000	8	8	000
PHENACETIN	Organics	UG/K G	178	7750	0	0.00	0.00	0.00	0.00	000	000		9
PHENOL, 2-METHYL-4,8-DINITRO-	Organics	UG/KG	178	7750	0	00.00	0.00	0.00	000	0.00	000	000	000

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

			Sample		Percent		Standard	Observed	99th	98th	95th	90th	A00A
Politiant	Type	Unit	Size	POTWs	Detect	Mean	Devlation	Maximim	Percentile	Dorontilo			1000
										בפרפווווע	rercenille	Percentile	Percentile
PHENOTHIAZINE	Organics	UG/KG	176	7750	•	ć	ć						
PHORATE	,		2 !	3	•	3	0.00	0.00	0.00	0.00	0.00	00.00	0.00
	Pesticides UG/KG	OG/KG	176	7750	0	0.00	0.00	00:0	00.0	0.00	0.00	000	8
THOOME	Pesticides UG/KG	UG/KG	176	7750	0	0.00	0.00	0.00	0.00	900	5	2	
PHOSPHAMIDON	Pesticides UG/KG	UG/KG	176	7750	0	1.05	15.20	232.00	000		8 6	8. 6	0.0
PHOSPHORIC ACID, TRIMETHYL ESTER	Pesticides UG/KG	UG/KG	176	7750	0	0.00	0.00	000	000	800	8 8	80.0	00.0
PHOSPHORIC TRIAMIDE, HEXAMETHYL.	Pesticides UG/KG	UG/KG	176	7750	0	0.00	0.00	000		8 6	8 8	80.0	000
PRONAMIDE	Organics	UG/KG	176	7750	0	0.00	0.00	000	000		8 8	00.0	00.00
PYRIDINE	Organics	UG/KG	176	7750	0	0.0	0.00	00:0	000	8 8	8 8	00.0	00.0
RESORCINOL	Organics	UG/KG	176	7750	0	0.00	0.00	00:0		8 8	8 8	80.0	000
SAFROLE	Organics	UG/KG	176	7750	0	00:0	0.00	000		8 8	8 8	80.0	0000
SQUALENE	Organics	UG/KG	178	7750	0	39.50	630.00	18,700.00	8 6	8 8	8 8	80.0	000
TERBUFOS	Pesticides UG/KG	UG/KG	178	7750	0	000	000	000	8 6	8 8	8 8	800	00.0
I ETRACHLORVINPHOS	Pesticides UG/KG	UG/K G	178	7750	0	000	000	000		8 8	8 8	8 8	00.0
TETRAETHYLDITHIOPYROPHOSPHATE	Pesticides UG/KG	UGAKG	178	7750	0	000	000	000		8 6	8 8	8 8	900
THAMAPHTHENE	Organics	UG/KG	178	7750	•	0.00	0.00	000	000	8 8	3 8	3 5	800
THOACETAMIDE	Organics	UG/K G	178	7750	0	000	0.00	0.00	000		8 8	3 8	8 8
THOXANTHE-9-ONE	Organics	UG/KG	178	7750	0	14.70	536.00	19,600.00	000	000	8 6	8 8	8 8
TOLUENE, 2,4-DIAMINO.	Organics	UG/K G	178	7750	0	0.00	0.00	000	000	000	8 0		8 8
TOXAPHENE	Pesticides UG/KG	UG/KG	175	7720	0	0.00	0.00	0.00	0.0	000	8		8 8
TRANS-1,3-DICHLOROPROPENE	Organics	UG/KG	176	7750	0	000	000	000	8		8 8	8 8	8 8
									2212	3.5	3	3	8

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondelects Set to zero

			Sample		Percent		Standard	Observed	99th	98th	95th	90th	50th
Pollutant	Type	Unit	Size	POTWs	Detect	Mean	Deviation	Maximum	Percentife	Percentile	Percentile	Percentile	Percentile
TRANS-1,4-DICHLORO-2-BUTENE	Organics	UG/KG	176	7750	0	00.0	00.0	00.0	00.0	0.00	00.0	0.00	00.0
TRIBROMOMETHANE	Organics	UG/KG	176	7750	0	00.00	0.00	0.00	00:0	00:0	0.00	00.0	000
TRICHLOROFON	Pesticides	Pesticides UG/KG	176	7750	0	2.13	69.60	2,530.00	000	0.00	000	0.00	000
TRIPHENYLENE	Organics	UG/KG	176	7750	0	11.50	422.00	15,400.00	0.00	0.00	0.00	0.00	0.00
TRIPROPYLENEGLYCOL METHYL ETHER	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	0.00	000	0.00	0.00	0.00
VINYL ACETATE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00:0	0.00	0.00	000	0.00
VINYL CHLORIDE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00'0	00.0	0.00	00:0	0.00
1-BROMO-2-CHLOROBENZENE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00:0	00:00	0.00	0.00	00.0
1-BROMO-3-CHLOROBENZENE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00.0	00:00	0.00	00:0	0.00
1-CHLORO-3-NITROBENZENE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00'0	0.00	0.00	0.00	0.00
1-METHYLFLUORENE	Organics	UG/KG	178	7750	0	0.00	0.00	0.00	00'0	0.00	0.00	00.0	0.00
1-METHYLPHENANTHRENE	Organics	UGAKG	178	7750	0	127.00	2,050.00	33,100.00	000	00.0	0.00	9.0	000
1-NAPHTHYLAMINE	Organics	UG/KG	178	7750	0	0.00	0.00	0.00	00.00	0.00	00.0	0.00	000
1-PHENYLNAPHTHALENE	Organics	UGAKG	178	7750	0	0.00	0.00	000	00.0	0.00	000	0.00	0.00
1,1-DICHLOROETHANE	Organics	UG/KG	178	7750	0	0.00	000	0.00	00'0	0.00	0.00	0.0	00:0
1,1-DICHLOROETHENE	Organics	UG/KG	178	7750	0	0.00	0.00	0.00	00'0	0.00	00'0	0.00	0.0
1,1,1-TRICHLOROETHANE	Organics	UG/KG	178	7750	0	87.60	1,410.00	22,900.00	00'0	0.00	00'0	0.00	0.00
1,1,1,2-TETRACHLOROETHANE	Organics	UGKG	178	7750	0	0.00	0.00	0.00	00.0	0.00	00'0	0.00	0.00
1,1,2-TRICHLOROETHANE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00.0	0.00	00.0	0.00	0.00
1,1,2,2-TETRACHLOROETHANE	Organics	UG/KG	178	7750	0	00.0	000	00:0	00.0	0.00	0.00	00.0	00.0

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondelects Set to zero

			Sample		Dorcont		7						
	ı				ו בו כבווו		Standard	Observed	99th	98th	95th	90th	50th
ronnami	Type	Chit	Size	POTWs	Detect	Mean	Deviation	Maximum	Percentile	Percentile	Percentile	Percentile	Percentile
													, , , , , , , , , , , , , , , , , , , ,
1,2-DIBROMO-3-CHLOROPROPANE	Organics	UG/KG	176	7750	0	00.0	0.00	000	000	5	ć	6	•
1,2-DIBROMOETHANE	Organics	UG/KG	176	7750	c				000	8.0	0.00	0.00	000
1.2-DICHLOROBENZENE	Cranica	()	3,5		,		00.0	8.0	0.00	8.0	0.00	00:0	0.00
	Organics	9 9 9 9	9/1	05//	0	21.50	1,590.00	117,000.00	0.00	0.00	0.00	000	000
L'A-DICHLOROE IHANE	Organics	UG/KG	176	7750	0	0.00	0.00	00'0	0.00	00.0	0.00	0.00	000
1,2-DICHLOROPROPANE	Organics	UG/KG	176	7750	0	0.04	3.11	230.00	00'0	000	6		8
1,2-DIPHENYLHYDRAZINE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00.0	000			8 6
1,2,3-TRICHLOROBENZENE	Organics	UG/KG	176	7750	0	7.95	587.00	43,400.00	0000			8 8	8 8
1,2,3-TRICHLOROPROPANE	Organics	UG/KG	176	7750	0	0.00	0.00	000	000		8 6	8 8	8 8
1,2,3-TRIMETHOXYBENZENE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	000	900	8 6	3 5	8.8
1,2,4-TRICHLOROBENZENE	Organics	UG/KG	176	7750	0	51.40	2,580.00	184,000,00	000		8 6	8 8	8 8
1,2,4,5-TETRACHLOROBENZENE	Organics	UG/KG	176	7750	0	0.00	0.00	000	000		8 6	8 8	8 8
1,3-BUTADIENE, 2-CHLORO	Organics	UG/KG	176	7750	0	0.00	0.00	0.00		6	8 6	3 5	8 6
1,3-DICHLORO-2-PROPANOL	Organics	UG/KG	178	7750	0	0.00	0.00	0.0	000		8 8	3 6	8 8
1,3-DICHLOROBENZENE	Organics	UG/KG	176	7750	0	6.92	416.00	30,600.00	0.0	000	8 8		8 6
1,3-DICHLOROPROPANE	Organics	UGAKG	178	7750	0	000	0.0	0.00	00.00	900	8		8 6
1,3,5-TRITHIANE	Organics	UG/KG	178	7750	0	0.00	0.00	0.00	000	900			8 6
1,4-DINITROBENZENE	Organics	UG/KG	178	7750	0	16.80	272.00	4,400.00	0.00	80	8		8 8
1,4-NAPHTHOQUINONE	Organics	UGAKG	178	7750	0	0.00	000	000	0.0	000	000	8 6	800
1,4-NAPHTHOQUINONE, 2,3-DICHLORO-	Pesticides UG/KG	UG/KG	175	7720	0	0.00	000	000	0.00	000	000	8	8
1,5-NAPHTHALENEDIAMINE	Organics	UG/KG	178	7750	0	0.00	00.00	0.00	000	000	000	000	000

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

			Sample		Percent		Standard	Observed	99th	98th	95th	404	50th
Pollutant	Type	Unit	Size	POTWs	Detect	Mean	Devlation	Maximum	Percentile	Percentile	Percentile	Percentile	Percentile
2-(METHYLTHIO)BENZOTHIAZOLE	Organics	UG/KG	176	7750	0	48.20	1,760.00	64,400.00	00.0	0.00	0.00	00:0	00.0
2-CHLOROETHYLVINYL ETHER	Organics	UG/KG	176	7750	0	000	0.00	0.00	0.00	0.00	000	0.00	0.00
2-CHLOROPHENOL	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2-ISOPROPYLNAPHTHALENE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	0.00	0.00	000	00:0	0.00
2-METHYLBENZOTHIOAZOLE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00:00	000	00:00	0.00	0.00
2-NITROANILINE	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00:0	0.00	0.00	0.00	0.00
2-NITROPHENOL	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00:00	0.00	0.00	0.00	0.00
2-PHENYLNAPHTHALENE	Organics	UG/KG	176	7750	0	0.00	0.00	000	00:00	0.00	0.00	000	00'0
2-PROPEN-1-OL	Organics	UG/KG	176	7750	0	0.12	1.95	31.20	0.00	0.00	0.00	0.0	0.00
2-PROPENAL	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	0.00	0.00	000	0.00	00:0
2-PROPENENITRILE, 2-METHYL-	Organics	UG/KG	176	7750	0	163.00	5,960.00	218,000.00	0.00	0.0	000	0.0	0.00
2,3-BENZOFLUORENE	Organics	UG/KG	178	7750	0	0.00	0.00	0.00	00:00	0.00	0.00	0.0	000
2,3-DICHLOROANILINE	Organics	UG/KG	178	7750	• ,	0.00	0.00	0.00	00:00	0.00	0.00	0.0	00.0
2,3-DICHLORONITROBENZENE	Organics	UG/KG	178	7750	0	0.00	0.00	0.00	00.0	00.0	000	0.0	00:0
2,3,4,6-TETRACHLOROPHENOL	Organics	UG/KG	178	7750	0	0.00	0.00	0.00	00.0	00.0	0.00	0.0	00.0
2,3,6-TRICHLOROPHENOL	Organics	UG/KG	178	7750	0	0.00	0.00	0.00	00.0	00.0	0.00	0.0	000
2,4-DICHLOROPHENOL	Organics	UG/KG	178	7750	0	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.00
2,4-DIMETHYLPHENOL	Organics	UG/KG	176	7750	0	0.00	0.00	0.00	00.00	00'0	0.0	0.0	00:0
2,4-DINITROPHENOL	Organics	UG/KG	176	7750	0	0.00	0.00	00.0	00.0	0.00	00.0	0.00	000
2,4-DINITROTOLUENE	Organics	UG/KG	178	7750	0	0.00	0.00	0.00	00.00	0.00	00.00	0.00	00.0

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

4.00			Sample		Percent		Standard	Observed	7400				
Londiant	Туре	Unit	Size	POTWs	Detect	Mo		200	1 366	98th	95th	90th	Soth
							Deviding	Maximum	Percentile	Percentile	Percentile	Percentile	Percentite
2,4,5-TRICHLOROPHENOL	Ċ	9											9111120
2 4 6. TRICH! OBOBURNO!	Organics		176	7750	0	0.00	0.00	000	0	6	1		
TO THE CHOLDENOL	Organics	UG/KG	176	7750	0	000	2		9.0	0.00	0.00	0.00	00.0
2,6-DI-TERT-BUTYL-P-BENZOQUINONE	Organics	UG/KG	176	7750	, (0.00	00.0	00'0	0.00	0.00	000	9
2,6-DICHLORO-4-NITROANILINE				2	-	0.00	0.00	0.00	00:00	000	2		
2 6-DICHI OROBHENOI	Ciganics	9K/90	176	7750	0	0.00	0.00	000	8		3.	000	0.00
	Organics	UG/KG	176	7750	0	000	00		80.0	0.00	00:0	0.00	0.00
Z.o-DINITROTOLUENE	Organics	UG/KG	176	7750	c	0 44	46.00	0.00	0.00	0.00	0.00	0.00	00.0
3-CHLOROPROPENE	Organics	UG/KG	176	7750	, ,		00.261	2,4/0.00	0.00	0.00	00.0	0.00	000
3-METHYLCHOLANTHRENE	Organics	ווטעטו	476	3	-		21.90	367.00	0.00	00.0	0.00	000	2
3-NITROANILINE			92 !	8	0	0.00	0.00	0.00	0.00	000	5	8	8 6
3.3'-DICHI OROBENZIDINE	Cigalises	9 9 9 9	1/6	7750	0	0.00	0.00	00.00	000	2	9 6	3.	0.00
	Organics	CGKG	178	7750	0	000	8	5		3	0.00	00.0	000
3,3 -CHME I HOXYBENZIDINE	Organics	UG/KG	178	7750	c			8	8.0	0.00	0.00	0.00	00.0
3,6-DIMETHYLPHENANTHRENE	Organics	UGAKG	178	7750	•	000	9	0.00	0.00	0.00	0.00	000	000
4-AMINOBIPHENYL	Organics	1 KOKO		8 1	-	143.00	2,310.00	37,400.00	0.00	0.00	000	000	2
4-BROMOPHENYL PHENYL ETHER	Ordenies) Koko	2 5	8	0	0.0	0.00	0.00	0.00	0.00	000	8	
4-CHLORO-2-NITROANILINE	Organica		2 5	2	0	8	0.00	0.00	0.00	0.00	000	8	
4-CHLORO-3-METHYLPHENOL	Organica	l Power	2 ;	8	0	0.00	0.00	0.00	0.00	0.00	000	8	60.0
4-CHLOROPHENYLPHENYL ETHER	Organica		2 ;	8	0	104.00	3,730.00	136,000.00	000	0.00	000	8	8 8
4-NITROPHENOL			9 :	200	0	0.0	0.00	0.00	0.00	000		8 8	8 6
77,000		9 X 9	178	7750	0	0.00	000	0.00	000	2	3 8	8 6	90.0
	Pesticides	OG/KG	52	7720	0	0.07	5.30	391.00	2	8 6	800	8	000
4,4 THE ITTLENEDIS (2-CHLOROANICINE)	Organics	UG/KG	178	7750	0	8	8		3	800	0.00	0.00	0.00
						3	3	8.0	0.00	000	0.00	0.00	0.00

TABLE 4. NATIONAL POLLUTANT CONCENTRATION PERCENTILE ESTIMATES FROM THE NATIONAL SEWAGE SLUDGE SURVEY Candidate Pollutants for Round Two Regulations

Nonparametric Substitution Method Estimation Procedure - Nondetects Set to zero

:			Sample		Percent		Standard	Observed	99th	98th	95th	400	£044
Pollutant	Туре	Cuit	Size POT	POTWs	Detect	Mean	Devlation	Maximum	Darcontilo	Dorogneile			1000
									ייייייייייייייייייייייייייייייייייייייי	Leiceinie	Percentile	Percentile	Percentile
4,5-METHYLENE PHENANTHRENE	Organics UG/KG	UG/KG	176	7750	c	ç	Ġ						
S-NITBO-O-TOILIIDINE					•	0.00	3	00.00	0.00	0.00	0.00	0.00	00.0
	Organics	OG/KG	176	7750	0	00'0	00'0	00.0	00'0	0.00	000	000	
1,12-DIME IHYLBENZ(A)AN IHRACENE	Organics	UG/KG	176	7750	0	0.00	00.0	0.00	00.0	8	9		
ACENAPHTHENE	Organics	UG/KG	176	7750	0	1.27	46.60	1 700 00	2		9 6	800	0.00
ACENAPHTHYLENE	Organics	UG/KG	176	7750	0	000	000	000	000	8 6	0.00	90.0	000
ACRYLONITRILE	Organics	UG/KG	176	7750	c			000	3.	8.0	35	0.00	0.00
ANLINE			2 ;	3	•	3.0	0.00	9.00	00.0	0.00	0.00	00:00	
	Organics	OG/KG	1/6	1150	0	0.00	0.00	0.00	0.00	0.00	000	00.00	
	Dioxins	NG/KG	174	7714	0	54.10	168.00	1,700.00	547.00	518.00	250.00	84 95	
PCB .	Pesticides	UG/KG	175	7720	0	393.00	1,790.00	13,400,00	8.700.00	2 470 00	1320.00	00.00	07:11
PCB-1016	Pesticides	UG/KG	175	7720	0	000	000		5	00.01	00.030.1	003:00	00.0
PCB-1221	Pesticides	UG/KG	175	7720	0		8	8	8 8	8.6	0.0	8.5	000
PCB-1232	Pesticides UG/KG	UG/KG	175	7720	· c	2	8	000	8 8	0.00	00.0	0.00	000
PCB-1242	Pesticides 1197KG	וופעני	175	17.00	,	8 6	3 1	3	8	0.00	000	000	000
			2	37.7	9	80	0.00	000	0.00	00'0	0.00	0.00	000

(a) Composites considered a detect if all individual congeners or PCBs are measured above the minimum level.

TABLE 5

SEMIQUANTITATIVE METALS in the NATIONAL SEWAGE SLUDGE SURVEY

CAS NUMBER	CHEMICAL NAME	CAS NUMBER	CHEMICAL NAME
7440699	BISMUTH	7440246	STRONTIUM
7440451	CERIUM	7704349	SULFUR
7429916	DYSPROSIUM	7440257	TANTALUM
7440520	ERBIUM	13494809	TELLURIUM
7440531	EUROPIUM	7440279	TERBIUM
7440542	GADOLINIUM	7440291	THORIUM
7440553	GALLIUM	7440304	THULIUM
7440564	GERMANIUM	7440337	TUNGSTEN
7440575	GOLD	7440611	URANIUM
7440064	PLATINUM	7440031	NIOBIUM
7440097	POTASSIUM	7440644	YTTERBIUM
7440100	PRASEODYMIUM	7440042	OSMIUM
7440155	RHENIUM	7440677	ZIRCONIUM
7440166	RHODIUM	7440053	PALLADIUM
7440188	RUTHENIUM	7723140	PHOSPHORUS
7440199	SAMARIUM	7553562	IODINE
7440202	SCANDIUM	7439885	IRIDIUM
7440213	SILICON	7439910	LANTHANUM
7440586	HAFNIUM	7439932	LITHIUM
7440600	HOLMIUM	7439943	LUTETIUM
7440746	INDIUM	7440008	NEODYMIUM